

INDEX, 1961, NOS. 1-4

NEW NAMES

- aporrhox*, *Lepophidium*, 218
Aseraggodes ocellatus, 293
baileyi, *Cottus*, 311
bivocata, *Hyla*, 414
brattstroemi, *Liolaemus cyanogaster*, 486
Brotuloides, 214
bucca, *Varicus*, 47
Chionodraco markhami, 50
Cnemidophorus inornatus heptagrammus, 153
constanza, *Liolaemus*, 389
Cottus baileyi, 311
Cottus girardi, 306
cyanogaster brattstroemi, *Liolaemus*, 486
cyrano, *Forcipiger*, 60
diabola, *Tantilla*, 144
eiselti, *Habrahyla*, 63
fasciatus, *Gastromyzon*, 173
Forcipiger cyrano, 60
Forcipiger inornatus, 58
galapagensis, *Mugil*, 296
Gastromyzon fasciatus, 173
girardi, *Cottus*, 306
greeri, *Lampropeltis*, 326
Gymnocranius japonicus, 438
Habrahyla, 62
Habrahyla eiselti, 63
heptagrammus, *Cnemidophorus inornatus*, 153
hubrichti, *Phaeognathus*, 67
Hyla bivocata, 414
inornatus, *Forcipiger*, 58
inornatus heptagrammus, *Cnemidophorus*, 153
japonicus, *Gymnocranius*, 438
Lampropeltis greeri, 326
Lepophidium aporrhox, 218
Liolaemus constanzae, 389
Liolaemus cyanogaster brattstroemi, 486
Liolaemus paulinae, 387
Liolaemus ruibali, 390
markhami, *Chionodraco*, 50
megalepis, *Monolene*, 192
mintoni, *Proacris*, 354
Monolene megalepis, 192
Monotaxinae, 437
Mugil galapagensis, 296
myersi, *Xyelacyba*, 289
Notropis semperasper, 451
ocellatus, *Aseraggodes*, 293
paulinae, *Liolaemus*, 387
Phaeognathus, 66
Phaeognathus hubrichti, 67
Proacris, 354
Proacris mintoni, 354
Raneya, 212
ruibali, *Liolaemus*, 390
semperasper, *Notropis*, 451
Tantilla diabola, 144
Varicus, 46
Varicus bucca, 47
Xyelacyba, 288
Xyelacyba myersi, 289

ESTABLISHED NAMES

- abbotti*, *Eleutherodactylus*, 108
abdominalis, *Abudefduf*, 267-8
Abudefduf, 267, 269
abdominalis, 267-268
acanthias, *Squalus*, 228
Acanthocybium, 228
solanderi, 482
Acanthodes, 162
Acanthoessus bronni, 162
Acanthonus, 288-289
armatus, 289
spinifer, 288-289
Acanthurus, 267, 269, 358
chronixis, 358
coeruleus, 238
doreensis, 359
doreensis valenciennes, 358
gahhm, 358
glaucopareius, 358
grammoptilus, 358
melanesternon, 358
pyreferus, 358
pyroferus, 358
randalli, 358
triostegus, 57, 237-238
aceratus, *Chaenoccephalus*, 17
Achirophichthys kampeni, 115-116
Acipenser, 179, 481
Acris gryllus, 354, 393
gryllus gryllus, 393

- Actinopyga mauritiana*, 479
aculeatus, *Gasterosteus*, 273, 448, 485
aculeatus, *Prognathodes*, 54
acuminatus, *Grammistes*, 27
acuminatus, *Pareques*, 28, 30, 31
acus, *Carapus*, 479
adamanteus, *Crotalus*, 323-325, 489
aeneus, *Aneides*, 97, 353, 393, 395
aeneus, *Corydoras*, 9, 10
aeneus, *Epinephelus*, 471
aestivus, *Ophiodryx*, 394
affine, *Myctophum*, 279
affinis, *Atherinops*, 37
affinis, *Gambusia*, 202, 209
affinis littoralis, *Atherinops*, 37, 39
Agalychnis, 62, 64
aggregata, *Cymatogaster*, 38
Agonostomus, 295, 298, 301
monticola, 303
airiommum, *Moxostoma*, 311
Alburnus, 179
albacares, *Thunnus*, 482
alepidotus, *Peprilus*, 482
alexandri, *Sebastodes*, 280
alleganiensis, *Cryptobranchus*, 392, 395
Alosa, 40
Alpheus crassimanus, 19
alpinus, *Salvelinus*, 359
alterna, *Lampropeltis*, 326, 330
alticolor, *Liolaemus*, 389
altipinnis, *Notropis*, 455
Alutera blankerti, 361
fuscus, 361
heudelotii, 360-361
longirostris, *Forcipiger*, 60
monoceros, 360
punctata, 360
schoepfii, 360
scripta, 360
ventralis, 361
alvarius, *Bufo*, 89-93
amates, *Plahlichthys*, 202, 207
Ambassis safga, 19
Ambystoma, 136, 138, 371-383
cingulatum, 374
fluvinatum, 374-375
gracile, 375
jeffersonianum, 133, 137-138, 377-383
laterale, 378
macrodactylum, 137, 375
macrodactylum croceum, 132-139
maculatum, 132, 133, 137, 374, 377-383, 495-496
opacum, 132, 137, 377-383, 392
rosaceum, 371-377
rosaceum nigrum, 377
rosaceum sonoraensis, 377
texanum, 377-383
tigrinum, 96, 137, 374-376, 495
tigrinum stebbinsi, 376
tigrinum tigrinum, 377-83
Ameiurus, 179
[=*Ictalurus*], 43
[=*Ictalurus*] *nebulosus*, 42
americana, *Dasyatis*, 234
americanus, *Bufo*, 90, 393
americanus, *Lophius*, 230
americanus, *Bufo terrestris*, 393
americanus vermiculatus, *Esox*, 235-236
americanus X woodhousei, *Bufo*, 89
Amia, 179
amoenus, *Carphophis amoenus*, 394
amoenus, *Notropis*, 451-452
amphitrite, *Balanus*, 19
Anchoa, 239-240
Ancistrodon contortrix, 394
Aneides aeneus, 97, 353, 393, 395
annandalei, *Bhavana*, 472
annandalei, *Garra*, 472
annulata, *Lampropeltis doliata*, 331
annulatus, *Siphonops*, 490
annulipes, *Uca*, 19
Anolis, 69
carolinensis, 404
carolinensis carolinensis, 393
anomalum, *Campostoma*, 4
Anoplarchus purpureus, 351
Anoptichthys hubbsi, 9-10
Anotheca coronata, 495
antarcticus, *Cryodraco*, 51
Antennarius nummifer (Cuvier) 230
anthracinus pluvialis, *Eumeces*, 393
apelles, *Gasterosteus*, 442
Apelles quadracus, 442-450
Aphyosemion, 210
Aplochiton, 162
Aplodactylus, 162
Apogon, 266
Apogon snyderi, 265
aporrhox, *Lepophidium*, 216-220
approximans, *Holbrookia maculata*, 405
Aprolepis, 426
barbarae, 426
arborifera, *Dendronereis*, 22
Arbutus, 375
Arctogadus, 236-237
borisovi, 236
glacialis, 236-237
pearyi, 236
arenarius, *Cynoscion*, 460
armata, *Hoplobrotula*, 289
armatus, *Acanthorus*, 289
armatus, *Leptocottus*, 38
asaetae, *Monolene*, 194
Aseraggodes, 292, 293

- herrei*, 294
macleayanus, 294
monticola, 295
morrowi, 294
normani, 294
ocellatus, 292
asper, Cottus, 310
aspera, Dasyatis, 234
assimilis, Tachymenis, peruviana, 482-488
Astyanax mexicanus, 9-10
atacamensis, Liolaemus, nigromaculatus, 487-8
Atherina, 268
Atherina harringtoni, 266
atherinoides, Notropis, 447, 455
Atherinops, 37, 38
Atherinops affinis, 37
Atherinops affinis littoralis, 37, 39
atlanticus, Bothus, 276
atlanticus, Thunnus, 482
atra, Holothuria, 479
atrimana, Monolene, 194
atrizona, Quintana, 202, 207
atromaculatus, Semotilus, 4
atropurpureus, Xiphister, 351
attenuatus, Batrachoseps, 82, 85
attu, Wallago, 176-177, 180
augusti, Eleutherodactylus, 104-108
augusti latrans, Eleutherodactylus, 103-109
auratus, Carassius, 9, 10, 184
auriculatus, Sebastodes, 279-282
auriculatus dalli, Sebastodes, 280
Avicennia, 19-20
marina, 19
avivoca, Hyla, 340-348
avivoca avivoca, Hyla, 393
aya, Chaetodon, 54
azureau, Scleractinia, 357

baileyi, Cottus, 307-315
bairdi-cognatus, Cottus, 315
bairdi, Cottus, 311, 314
bairdi, Cottus baird, 306, 307
Bairdiella, 239
chrysura, 240
Balanus amphitrite, 19
balteatus, Richardsonius, 270-271, 447
balteatus, Richardsonius balteatus, 272
barbarae, Arolepis, 426
Barilius christyi, 9-10
barracuda, Sphyraena, 265-266
Batrachoseps, 82, 84
attenuatus, 82, 85
wrighti, 82
Batrachus, 179
Beaufortia, 168
belizanus, Belonesox, 202
Belonesox, 204-210

belizanus, 202
bergylta, Labrus, 267
bernacchii, Trematomus, 11-18
beryllina, Menidia, 242
Bhavana annandalei, 472
bipinnulatus, Elagatis, 357
bicoloratus, Kareius, 485
bifasciatum, Thalassoma, 238
bifrenatus, Notropis, 449
bigelowi, Sphyrna, 480
bimaculatus, Pseudoxiphophorus, 202, 208
biocellatum, Cichlasoma, 9
bislineata bislineata, Eurycea, 393
bislineata cirrigera, Eurycea, 393
bislineata, Eurycea, 83
bitaeniatus ssp., Chamaeleo, 411, 413
bitaeniatus rudis, Chamaeleo, 411, 413
bivocata, Hyla, 414-417
blairi, Lampropeltis, 330
blanchardi, Neoclinus, 484
blankerti, Aluterus, 361
blennius, Notropis, 455
boleosoma, Gobionellus, 49
Bolitoglossa rufescens, 85
straitula, 85
bolivianus, Liolaemus, 387-391
Bombina, 94
variegata, 94
bonasus, Rhinoptera, 482
boreas boreas, Bufo, 488
boreas, Bufo, 90
borisovi, Arctogadus, 236
borneensis, Gastromyzon, 167-168, 171-172
borneensis, Protomyzon, 167
Bothus, 276-279
atlanticus, 276
ocellatus, 275-279
boulengeri, Oreophis, 328
brychyphona, Pseudacris, 393, 395
braminus, Typhlops, 221
Branchiostoma, 242
Branchiostoma caribaeum, 242
Brannerella sp., 482
brasiliensis, Hemiramphus, 481
brattstroemi, Liolaemus cyanogaster, 486, 488
brevibarbe, Lepophidium, 213
brevirostris, Negaprion, 481
Brevoortia, 40
gunteri, 42
patronus, 39-40, 42, 458-460
smithi, 42
tyrannus, 42, 239
bromeliacea, Hyla, 417
bronnii, Acanthoessus, 162
Brotula, 215
Brotuloides, 214
browni, Heterodon platyrhinos, 127
Brotuloides emmelas, 215-219
brunus, Hydromantes, 85

- bryope*, *Neoclinus*, 484
bucca sp. nov., *Varicus*, 47
buccata, *Ericymba*, 7
Bufo, 86-95
 alvarius, 89-93
 americanus, 90-93
 americanus X *woodhousei*, 89
 boreas, 90
 boreas boreas, 488
 cognatus, 89-93
 debilis, 90-93
 fowleri, 90-93
 hemiphrys, 90-93
 houstonensis, 90-93
 marinus, 90-93
 microscaphus, 90-93, 375
 praeivius, 354
 punctatus, 89-93
 quercicus, 90-94
 speciosus, 89-94
 terrestris, 90-93
 terrestris americanus, 393
 valliceps, 77-94
 woodhousei, 91-94, 133-135
 woodhousei X *americanus*, 93
 woodhousei fowleri, 393
 woodhousei X *valliceps*, 91-93
 w. woodhousei, 333
bunkerii, *Holbrookia*, 405
burti, *Peprius*, 482
bryope, *Neoclinus*, 484

Cabillus lacertops, 46
caeruleum, *Etheostoma*, 7
cabrilla, *Serranellus*, 471
californicus, *Paralichthys*, 36
Callichthys, 179
Callidulus, 471
calligaster, *Lampropeltis*, 331
Callinectes, 239
 sapidus, 240
Callisaurus, 68, 405
 draconoides, 223
 draconoides gabbi, 405
 draconoides ventralis, 405
 draconoides ventralis X *gabbi*, 405
Caloglyphus, 491
 longitarsus, 491
Calotes versicolor, 69
Camptostoma anomalum, 4
Cancer, 239
 irroratus, 240
canina, *Synderidia*, 478
canis, *Mustelus* 480
canorus, *Bufo*, 90
caprodes, *Percina*, 195-196, 231
Caranx melampygus, 265

Carapus
 acus, 479
 homei, 478-479
 margaritiferae, 479-480
Carassius auratus, 9-10, 184
Carcharhinus leucas, 359
 nicaraguensis, 359
Careproctus reinhardti, 237
caribaeum, *Branchiostoma*, 242
carolina carolina, *Terrapene*, 393
carolinae, *Cottus*, 310-313, 395
carolinensis, *Anolis*, 393, 404
carolinensis, *Desmognathus ochrophaeus*, 319, 321-322
Carphophis amoenus amoenus, 394
carpio, *Cyprinus*, 184
Caspialosa, 40
catesbeiana, *Rana*, 341, 393
caudimaculatus, *Phalloceros*, 202
celebicus, *Acanthurus*, 359
Cemophora coccinea, 394
Centropristis subligarius, 470
centroura, *Dasyatis*, 232-234
cepedianum, *Dorosoma*, 481
cephalica, *Pseudoeurycea*, 85
Cephalopholis, 266
Cephalopholis urodelus, 265
Cephaloscyllium uter, 475
 ventriosum, 475
cephalus, *Mugil*, 268, 296-304, 457
cerastes, *Crotalus*, 489
cervinus, *Siphlophis*, 385
Cetorhinus maximus, 476
Chaenoccephalus aceratus, 17
Chaenomugil, 295
 proboscideus, 295-304
Chaetodipterus faber, 456-457
Chaetodon, 265
 aya, 54
 longirostris, 55
Chamaistoma, 480
Chamaeleo, 411, 413
 bitaeniatus ssp., 411, 413
 bitaeniatus rudis, 411, 413
 deremensis, 411, 413
 fischeri ssp., 411, 413
 fischeri excubitor, 411, 413
 fulleborni, 411, 413
 goetzei, 411, 413
 incornutus, 411, 413
 jacksoni, 411, 413
 johnstoni, 411, 413
 laterispinus, 411, 413
 spinosus, 411, 413
 tempeli, 411, 413
 tenuis, 411, 413
 werneri, 411, 413
 xenorhinus, 411, 413

Chamele
chamisso
Champs
Channa
Chanos
chapala
chaquer
chaquer
charlott
Cheilie
Cheilio
Chelmo
Chelmo
 longi
Chelmo
Chelyd
 serpe
Cherub
 lelep
chesterr
chihuah
chilens
chilose
Chiono
 hamo
 kath
 marl
chiquit
Chirop
 dimi
 pris
Chiros
 cons
chondr
chloro
Chriol
christy
chroni
Chroso
 neoj
Chryso
chryso
 lu
chryso
chryso
 lu
Chryso
chryso
Cichla
ciliila
cinera
cinera
cinera
cingu
Cirrh
cirrig
clami

- Chameleon vulgaris*, 68
chamissonis, *Dremicus*, 488
Champscephalus gunnari, 15-17
Channa, 163
Chanos, 3
chapalae, *Chirostoma*, 242
chaquensi, *Leptodactylus*, 336-340
chaquensis, *Leptodactylus*, 336, 340
charlottae, *Mugil*, 303
Cheilie inermis, 265
Cheiliotrema, 28
Chelmo, 54
Chelmon lol, 56
 longirostris, 55
Chelmonops, 54
Chelydra, 356
 serpentina serpentina, 393
Cherublemma, 289
 lelepris, 288-289
chesteri, *Phycis*, 229-230
chihuahuana, *Pinus*, 375
chilensis, *Halaelurus*, 476
chilosensis, *Liolaemus pictus*, 486, 488
Chionodraco, 50, 53
 hamatus, 51
 kathleenae, 51
 markhami, *sp. nov.*, 50-53
chiquita, *Garmannia*, 433
Chiropterotrion chondrostega, 85
 dimidiatus, 85
 priscus, 85
Chirostoma chapalae, 242
 consocium, 242
chondrostega, *Chiropterotrion*, 85
chlorophthalmus, *Uca*, 19
Chirolepis, 48
christyi, *Barilius*, 10
chronixis, *Acanthurus*, 358
Chrosomus eos, 183
 neogaeus, 183-184
Chrysemys picta, 109
chrysocephalus chrysocephalus, *Notropis*, 181-187
chrysocephalus, *Notropis*, 184, 187
chryscephalus, *Notropis* \times *Notropis rubellus*, 183
Chrysophrys major, 441
chrysura, *Bairdiella*, 240
Cichlasoma biocellatum, 9
ciliilabus, *Neomysus*, 303
cinerascens, *Holothuria*, 479
cinerea, *Hyla*, 354
cinereus cinereus, *Conger*, 115
cinereus, *Plethodon*, 95-98, 110-112
cingulatum, *Ambystoma*, 374
Cirrhimuraena macgregori, 357
cirrigera, *Eurycea bislineata*, 393
clamitans, *Rana*, 77, 341, 393
clamitans melonota, *Rana*, 393
clarki, *Salmo*, 117, 158
clathratus, *Paralabrax*, 38
claytoni, *Gobionellus*, 49
Clupea, 41
 esox, 180
 harengus, 39, 41, 179
 pilchardus, 40-41
Clupeonella, 40
Cnemidophorus, 98-103, 113, 150, 493-494
 costatus huico, 100
 costatus, 102
 costatus occidentalis, 99, 100, 102
 inornatus, 148-157
 inornatus heptagrammus, 150, 153, 156
 inornatus inornatus, 151-153
 lacertoides, 493
 octolineatus, 148-151, 157
 perplexus, 149, 153
 sacki, 98
 sacki exsanguis, 149
 sacki gularis, 493
 sacki huico, 98
 sacki occidentalis, 98, 100
 sacki scalaris, 98
 sacki semifasciatus, 149
 sackii, 352-353
 scalaris, 102
 sexlineatus, 155, 393, 493
 sexlineatus gularis, 149, 151
 sexlineatus perplexus, 149, 151
Cnesterodon, 210
coccinea, *Cemophora*, 394
coeruleus, *Acanthurus*, 238
cognatus, *Bufo*, 89-92
colliei, *Hydrolagus*, 311, 314, 475
Coluber constrictor constrictor, 394
 compressus, *Tripanurgos*, 385
 consocium, *Chirostoma*, 242
Conger cinereus cinereus, 115
constanzae, *Liolaemus*, 389
contortrix, *Ancistrodon*, 394
constrictor, *Constrictor*, 353
constrictor constrictor, *Coluber*, 394
cornutum, *Phrynosoma*, 73, 112
cornutus, *Notropis*, 115, 181-192
cornutus, *Notropis* \times *Notropis rubellus*, 183, 187
coronata, *Anotheca*, 495
coronata coronata, *Tantilla*, 394
coronata, *Tantilla*, 147
Corydoras aeneus, 9-10
Coryphaena, 228
 hippurus, 226-227
Coryphopterus punctipictophorus, 482
costatus, *Cnemidophorus*, 102
costatus huico, *Cnemidophorus*, 100
costatus occidentalis, *Cnemidophorus*, 102

- Cottus*, 305-315
aleuticus, 310
asper, 310
baileyi, 305-315
bairdi bairdi, 305-315
cognatus, 311-315
carolinae, 305-315, 395
carolinae carolinae, 305-315
carolinae ssp., 310
girardi, 305-315
gobio, 310, 313
hubbsi, 309
princeps, 310
ricei, 310
zopherus, 310
cochianus, *Xiphophorus*, 202
Crago, 239
septemspinus, 240
crameri, *Hybopsis*, 477
crameri, *Oregonichthys*, 477
crassimanus, *Alpheus*, 19
crenata, *Thalamita*, 19
Crinia insignifera, 93
signifera, 93
croceum, *Ambystoma macrodactylum*, 132-139
Crotalus, 322
adamanteus, 323-325, 489
cerastes, 489
ruber, 489
ruber ruber, 418, 422
crucifer crucifer, *Hyla*, 393
crucifer, *Hyla*, 354, 393
Cryodraco antarcticus, 51
Cryptobranchius, 395
alleganiensis, 392, 395
crasoleucas, *Notemigonus*, 447, 449
Ctenochaetus striatus, 237-238
Ctenogobius, 49
curtisi, 46, 49
fasciatus, 46, 49
nebulo, 19, 26
Ctenomys, 494
Ctenosaura, 407
cuchumatana, *Magnadigita*, 85
Culcita novaeguineae, 480
cumingii, *Oregonichthys*, 477
curema, *Mugil*, 266, 295, 301-303
curtisi, *Ctenogobius*, 46
cyanellus, *Lepomis*, 113-115
cianocephalus, *Notropis umbratilis*, 113-115
cyanogaster brattstroemi, *Liolaemus*, 486, 488
cyanogaster cyanogaster, *Liolaemus*, 389, 486
cyclides, *Thamnophis dorsalis*, 112
cylindrica, *Pinnixia*, 240
Cymatogaster aggregata, 38
Cynoscion, 239, 430
arenarius, 460
regalis, 240
Cyphosus, 162
Cyprinella, 463
Cyprinus carpio, 184
cyrano, *Forcipiger*, 58, 60-62
cyrtopsis cyrtopsis, *Thamnophis*, 112
cyrtopsis, *Eutaenia*, 112
cyrtopsis ocellata, *Thamnophis*, 112
cyrtopsis, *Thamnophis*, 112
daguae, *Gobius*, 49
dalli, *Sebastes*, 280
dalli, *Sebastes auriculatus*, 280
Damalichthys, 267, 269
vacca, 267
darwinii, *Liolaemus*, 391
Dasyatis, 232-234
americana, 232-234
aspera, 234
centoura, 232-234, 239-241
sayi, 239-241
Damalichthys vacca, 265-268
debilis, *Bufo*, 90-93
decora, *Macrobrachia*, 495
deliciosa, *Sciaen*, 28
Dendroneis arborifera, 22
deremensis, *Chamaeleo*, 411, 413
Desmognathus, 65, 66, 79, 81, 82, 83, 315-318
fuscus, 67, 68, 82, 85, 97, 322
fuscus fuscus, 318, 392
monticola, 67
ochrophaeus, 67
ochrophaeus carolinensis, 319, 321-322
ocoee, 315, 316, 320-322
perlapsus, 315, 316
planiceps, 67
wrightii, 82, 85
detrusus, *Gillichthys*, 423, 426
diabola, *Tantilla*, 144, 147
Diadophis punctatus stictogenys, 394
diaphanus, *Fundulus*, 184
Diaphus effulgens, 279
dibranchiata, *Glycera*, 240
Diemictylus viridescens, 96
dilatus, *Spirinchus*, 476
dimidiatus, *Chiropterotriton*, 85
Diplodus holbrooki, 481
Dipsas, 383, 386
Dipsosaurus dorsalis, 396
Distichodus sp., 9
distichum, *Taxodium*, 392
doliata annulata, *Lampropeltis*, 331
dolomieui dolomieui, *Micropterus*, 115
doreensis, *Acanthurus*, 359
Dormitator, 46
Dorosoma cepedianum, 481

dorsalis
dorsalis
dorsalis
dorsalis
dorsalis
dorsalis
dorsalis
dorsalis
dorsalis
Dotilla
dracon
dracon
dracon
dracon
405
Dromic
drum
dubios
Dules
duperr
duplica
ebracco
Echene
ecpleop
edulis
effulge
eglande
egregiu
eistelti
Elagat
Elaph
gutt
obsc
obsc
electri
Electro
elegan
elegan
elegan
Eleoch
Eleotr
Eleuth
aug
aug
gue
ino
mar
nas
nul
pla
por
rico
rico
elong
Elops

- dorsalis cyclides*, *Thamnophis*, 112
dorsalis, *Dipsosaurus*, 396
dorsalis dorsalis, *Plethodon*, 392
dorsalis dorsalis, *Thamnophis*, 112
dorsalis, *Eutaenia*, 112
dorsalis, *Eutaenia sirtalis*, 112
dorsalis, *Gyptothorax*, 472
dorsalis ocellata, *Thamnophis*, 112
dorsalis postremis, *Thamnophis*, 112
dorsalis sumichrasti, *Thamnophis*, 112
Dotilla fenestrata, 22
draconoides, *Callisaurus*, 223
draconoides gabbi, *Callisaurus*, 405
draconoides ventralis, *Callisaurus*, 405
draconoides ventralis, *Callisaurus*, \times *gabbi*, 405
Dromicus chamissonis, 488
drummondhayi, *Epinephelus*, 481
dubiosa, *Monolene*, 194
Dules, 471
duperreyi, *Thalassoma*, 267
duplicata, *Polinices*, 240

ebraccata, *Hyla*, 471
Echeneis naucrates, 482
ecpleopus, *Neusticurus*, 143
edulis, *Mytilus*, 239–240
effulgens, *Diaphus*, 279
eglanteria, *Raja*, 239
egregius, *Richardsonius*, 270
eistelti, *Habrahyla*, 63
Elagatis bipinnulatus, 357
Elaphe
 guttata guttata, 394
 obsoleta obsoleta, 394
 obsoleta spiloides, 394
electricus, *Electrophorous*, 8
Electrophorous electricus, 8
elegans, *Holbrookia maculata*, 405
elegans, *Pseudemys scripta*, 222–223, 350
elegans, *Thamnophis*, 351
Eleocharis, 137
Eleotris, 46
Eleutherodactylus abbotti, 108
 augusti, 105, 106, 108
 augusti latrans, 103–109
 guentheri, 104, 107–108
 inoptatus, 108
 martinicensis, 104
 nasutus, 104, 106
 nubicola, 105–106, 108
 planirostris, 104
 portoricensis, 106, 108
 ricordi, 107
 ricordii planirostris, 104
elongatus, *Hepatus*, 358
Elops, 265–268

emmelas, *Brotuloides*, 215–219
emmelas, *Leptophidium*, 215
Encheliophis gracilis, 478–80
Engraulis, 40
Ensatina, 133
eos, *Chrosomus*, 183–184
Epinephelus, 266–267, 269, 471
 aeneus, 471
 drummondhayi, 471
 guaza, 471
 marginalis, 471
Eques, 27
 fuscovittatus, 30
 lanfeari, 31
 viola, 29
Equetus, 27–32
 lanceolatus, 29
 lanfeari, 31
 pulcher, 28
erectus, *Hippocampus*, 460
Ericymba buccata, 7
erinacea, *Raja*, 239
Esox, 162, 179
 americanus vermiculatus, 235–236
 niger, 449
Etheostoma, 1, 7
 caeruleum, 7
 flabellare, 7
 fonticola, 231
 fusiforme, 481
 kennicotti, 5
 lepidum, 195–200, 231
 longimanum, 455
 nianguae, 1, 2, 4
 nigrum, 455–456
 nigrum nigrum, 5, 7
 nigrum susanae, 5
 podostemone, 456
 sagitta, 5
 sagitta sagitta, 1–7
 sagitta spilatum, 2, 5
 sellare, 311
 spectabile, 195–197, 231
 spectabile, \times *H. scierus*, 232
 spilatum, 1, 3
 spilatum spilatum, 7
Eucyclogobius, 424
 newberryi, 38
Eulamia floridana, 481–2
 milberti, 481
Eumeces, 73, 113
 anthracinus pluvialis, 393
 inexpectatus, 393
 laticeps, 393
Eurycea bislineata, 83
 cirrigera, 393
 longicauda, 393

- longicauda guttolineata*, 393
longicauda longicauda, 393
Euspondylus festae, 139-143
strangulatus, 139-143
Eutaenia cyrtopsis, 112
dorsalis, 112
sirtalis dorsalis, 112
Evermannia, 424
Evermannichthys spongicola, 482
Eviota, 46
Eviotops, 46
Evorthodus, 49
lyricus, 49
excubitor, *Chamaeleo fischeri*, 411, 413
eximia, *Hyla*, 375
exsanguis, *Cnemidophorus sacki*, 149

faber, *Chaetodipterus*, 456-457
falcatus, *Girardinus*, 202
fasciata, *Perca*, 471
fasciata, *Sciaena*, 28
fasciatus, *Ctenogobius*, 46, 49
fasciatus, *Gastromyzon*, 168-175
fasciatus, *Gobius*, 49
femoralis, *Hyla*, 354
fenestrata, *Dotilla*, 22
festae, *Euspondylus*, 139-143
fischeri, *Chamaeleo*, 411, 413
fischeri excubitor, *Chamaeleo*, 411, 413
fitzgeraldi, *Liolaemus*, 391
flabellare, *Etheostoma*, 7
flavescens, *Perca*, 282-287, 449
flavolineatum, *Haemulon*, 481
floridana, *Eulamia*, 481-482
floridana floridana, *Pseudemys*, 339
floridana suwaniensis, *Pseudemys*, 339
fluminense, *Lepophidium*, 213
fluminense, *Raneya*, 213, 214
fluvinaturn, *Ambystoma*, 375
fonticola, *Etheostoma*, 231
fontinalis, *Salvelinus*, 15, 158, 359
Forcipiger, 53, 57
cyrano, 58, 60-62
flavissimus, 56
inornatus, 58, 59, 62
longirostris, 53-61
forficata, *Triglops*, 477
formosa, *Heterandria*, 202
fossilis, *Heteropneustes*, 179
fowleri, *Bufo*, 90-93, 393
fowleri, *Bufo woodhousei*, 333
woodhousei woodhousei, *Bufo*, 333
fremebundum, *Haemulon*, 481
frigidus, *Lycodes*, 237
frontalis, *Notropis cornutus*, 181
fulleborni, *Chamaeleo*, 411, 413

Fundulus, 32, 36
diaphanus, 184
heteroclitus, 8-10, 447
parvipinnis, 35, 39
fuscovittatus, *Eques*, 30
fuscovittatus, *Pareques*, 28, 30-1
fuscus, *Alutera*, 361
fuscus, *Desmognathus*, 67, 68, 82, 85, 97,
318-319, 321, 322, 392
fusiforme, *Etheostoma*, 481

gabbi × *Callisaurus draconoides ventralis*,
405
gabbi, *Callisaurus draconoides*, 405
gahhm, *Acanthurus*, 358
gairdneri, *Salmo*, 158
galacturus, *Notropis*, 5
galapagensis, *Mugil*, 295-299, 301-304
galeanae, *Pseudoeurycea*, 85
Gambusia, 204-207, 209-210
affinis, 202, 209
heterochir, 202
manni, 202
Garmannia, 48
chiquita, 433
Garra annandalei, 472
mullya, 473
Gasterosteus aculeatus, 273, 448, 485
apeltes, 442
millepunctatus, 442
quadracus, 442
Gastromyzon, 166-176
borneensis, 167-172
fasciatus, 168, 170, 173
nieuwenhuisi, 167-168, 175
genei, *Hydromantes*, 85
Gastromyzon pauciradiatus, 168, 174
punctulatus, 168, 172-173
Gastrophysa, 354, 355
Geochelone, *sulcata*, 498
getulus splendida, *Lampropeltis*, 331
gibbosus, *Lepomis*, 449
gilberti, *Noturus*, 311
Gillia, 424
Gillichthys, 423-37
detrusus, 423, 426, 430
mirabilis, 423-37
seta, 423-37
girardi, *Cottus*, 307, 310, 313, 315
Girardinus, 204-206
falcatus, 202
Girella, 38
nigricans, 38-39
glacialis, *Arctogadus*, 236-237
glaucoptereus, *Acanthurus*, 358
glesne, *Regalecus*, 481

glutinosus, 392
Glycera, 413
dibra, 413
Glyptothorax, 413
labialis, 413
Gylptothorax, 413
telchior, 413
Gnathopoma, 413
Gnathopoma, 413
Gobies, 413
gobio, 413
Gobion, 413
Gobion, 413
bole, 413
claytoni, 413
stigma, 413
Gobio, 413
Gobio, 413
Gobius, 413
fasciatus, 413
leptocentrus, 413
manni, 413
tow, 413
goetzei, 413
goini, 413
Gobio, 413
Goph, 413
gracilis, 413
gracilis, 413
Gram, 413
gramm, 413
granu, 413
gratio, 413
grave, 413
greer, 413
grisw, 413
gryll, 413
gryll, 413
guaza, 413
guen, 413
gular, 413
gunn, 413
gunn, 413
gutta, 413
gutta, 413
gutta, 413
gutta, 413
Gym, 413
Gym, 413
jaf, 413
Gym, 413
mo, 413
vic, 413
gyrin, 413
Gyri, 413

- glutinosis glutinosis, *Plethodon*, 82, 85 133, 392
Glycera, 239–240
 dibranchiata, 240
Glyptosternum saisii, 472
 labiatum, 472
Gylptothorax madraspatanus, 472
 telchitta, 472
Gnathodentex, 437–438
Gnathonemas petersi, 9
Gobiesox macandrusi, 351
 gobio, *Cottus*, 310
Gobiomorus, 46
Gobionellus, 49
 boleosoma, 49
 claytoni, 49
 stigmaticus, 49
Gobiopterus, 436
Gobiosoma longipala, 482
Gobius daguae, 49
 fasciatus, 49
 lepidus, 424
 manglicola, 49
 townsendi, 426
goetzei, *Chamaeleo*, 411, 413
 goini, *Hyla*, 354
Gobiosoma longipala, 482
Gopherus, 496
 gracile, *Ambystoma*, 475
 gracilis *Encheliophis*, 478–480
 gracilis, *Tomeurus*, 202–203, 208
Grammistes acuminatus, 27
grammoptilus, *Acanthurus*, 358
granulosa, *Taricha*, 83, 351, 352
 gratiosa, *Hyla*, 354
 gravenhorsti, *Liolaemus*, 389
 greeri, *Lampropeltis*, 326–328, 330, 332
 griswoldi *Progastronomyzon*, 167
 gryllus, *Acris*, 354, 393
 gryllus gryllus, *Acris*, 393
 guaza, *Epinephelus*, 471
 guentheri, *Eleutherodactylus*, 104, 107–108
 gularis, *Cnemidophorus sexineatus*, 149, 151
 gularis *Cnemidophorus sacki*, 493
 gunnari, *Champsoccephalus*, 15, 17
 gunteri, *Brevoortia*, 42
 guttata, *Elaphe*, 394
 guttata, *Sesarma*, 19
 guttolineata, *Eurycea longicauda*, 393
 guttulata, *Hypsozetta*, 37, 39
Gymnachirus williamsoni, 482
Gymnocranius, 439
 japonicus, 437–441
Gymnothorax dorsalis, 472
 moringa, 42–44
 vicinus, 42
gyrina, *Physa*, 10
Gyrinophilus, 319
Habrahyala, 63–64
 eiselii, *sp.*, 63–64
Hadropterus
 scierus, 195–197, 231
 scierus × *E. spectabile*, 232
 shumardi, 231
Haemulon
 flavolineatum, 481
 fremebundum, 481
Haldea valeriae, 394
Halaelurus chilensis, 476
 hamatus *Chionodraco*, 51, 53
 hamiltoni, *Moxostoma*, 311, 456
Haplochiton, 162
Haplodactylus, 162
Haptoglossa pressicauda, 65
 harengus, *Clupea*, 39–42, 179
 harringtoni, *Atherina*, 266
 hasseltii, *Latrodectus*, 323
 hayi, *Hybognathus*, 462–466
 helleri, *Xiphophorus*, 9, 202, 206
 Heloderma suspectum, 491
 hemiphrys, *Bufo*, 90, 93, 335
 Hemi-Ramphus, 162
 Hemirhamphus, 162
 brasiliensis, 481
 hemolyticus, *Streptococcus*, 323
 Hepatus elongatus, 358
 nigricans, 358
heptagrammus, *Cnemidophorus inornatus*, 150, 153
 herbsti, *Panopeus*, 240
 herrei, *Aseraggodes*, 294
Heterandria, 204–205
 formosa, 202, 207
heterochir, *Gambusia*, 202
heteroclitus, *Fundulus*, 8–10, 447
Heterodon, 125, 130
 nasicus, 125, 131
 platyrhinos, 125–132
 platyrhinos browni, 127
 simus, 125
Heteropneustes fossilis, 179
heudelotii, *Alutera*, 360–361
hextii, *Tauredophilidium*, 289
Hiodon, 162
Hippocampus erectus, 460
 hippurus, *Coryphaena*, 226–227
Histiophorus, 162
Histrio histrio, 230
 holbrookii, *Diplodus*, 481
Holbrookia, 405
 bunkerii, 405
 lacerata, 405
 lacerata subcaudalis, 405
 maculata, 355
 maculata approximans, 405

- maculata elegans*, 405
maculata maculata, 68-74, 405
maculata thermophila, 405
propinqua, 405
propinqua propinqua, 405
texana, 405
texana texana, 405
texana scitula, 405
Holothuria atra, 479
cinerascens, 479
homei, *Carapus*, 478-9
Hoplegnathus, 164
Hoplobrotula, 289
armata, 289
hospes, *Mugil*, 303
houstonensis, *Bufo*, 90-91, 93
hubbsi, *Anoptichthys*, 9-10
hubbsi, *Cottus*, 309, 313
hubrichti, *Phaeognathus*, 67
huico, *Cnemidophorus costatus*, 100
huico, *Cnemidophorus sacki*, 98
hyacinthinus, *Sceloporus undulatus*, 393
Hybognathus hayi, 462-6
nuchalis, 462-6
Hybopsis, 183, 477
crameri, 477
storeriana, 463
Hydrolagus collicie, 475
Hydromantes, 83
brunus, 85
genei, 85
italicus, 83
platycephalus, 85
shastae, 85
hydrophlox, *Richardsonius balteatus*, 270
Hyla, 64, 414
avivoca, 340-349
avivoca avivoca, 393
bivocata, 414-417
bromeliacea, 417
cinerea, 354
crucifer, 354, 393
crucifer crucifer, 393
ebraccata, 417
eximia, 375
femoralis, 354
goini, 354
gratiosa, 354
leucophyllata, 417
microcephala, 417
phaeocrypta, 354
picta, 417
robertmertensi, 417
reticulata, 417
septentrionalis, 354
smithi, 417
sumichrasti, 414, 417
versicolor, 93, 393
versicolor versicolor, 393
Hypomesus olidus, 477
Hypsopsetta, 37
guttulata, 37, 39
Hypostomus plecostomus, 9
Ictalurus nebulosus, 449
Ilypnus, 424
imberbis, *Sirembo*, 289
incornutus, *Chamaeleo*, 411, 413
incundus, *Phallotorynus*, 202
inermis, *Cheilie*, 265
inexpectatus, *Eumeces*, 393
inoptatus, *Eleutherodactylus*, 103, 108
inornata, *Uma*, 396
inornatus, *Cnemidophorus*, 148-157
inornatus, *Forcipiger*, 57-59, 62
inornatus heptagramus, *Cnemidophorus*, 150, 153, 156
inornatus inornatus, *Cnemidophorus*, 151-153
insignifera, *Crinia*, 93
insularum, *Pranesus*, 265-266
intermedia nettingi, *Siren*, 355
iostoma, *Chama*, 480
irroratus, *Cancer*, 240
Istiophorus, 162, 228
italicus, *Hydromantes*, 83
jacksoni, *Chamaeleo*, 411, 413
jamaicensis, *Typhlops*, 221
japonicus, *Gymnocranius*, 437-441
jeffersonianum, *Ambystoma*, 133, 137-139, 377-383
johnstoni, *Chamaeleo*, 411, 413
jordani metcalfi, *Plethodon*, 133
kampeni, *Achirophichthys*, 115-116
Kareius bicoloratus, 485
kathleenae, *Chionodrac*, 51-53
Katsuwonus, 228
pelamis, 226-227
kellersi, *Paramyrus*, 115
kempi, *Lepidocheilus*, 109
kennicotti, *Etheostoma*, 5
kittlitz, *Acanthurus pyreferus*, 358
knoblochi, *Lampropeltis pyromelana*, 331
Kuhlia, 265-266
sandvicensis, 265-266
kuhlmani, *Liolaemus nigromaculatus*, 487-488
Kyphosus, 162
sectatrix, 482
labiatum, *Glyptosternum*, 472
Labrus bergylla, 267
lacerata, *Holbrookia*, 405

lacerata
Lacerta
lacertoid
lacertoid
laevis
laevis
laevis m
Lampro
alter
blair
callig
dolia
getu
green
leon
mexi
pyro
thay
Lanceo
lanceo
lanfea
lanfea
lanfea
lateral
lateral
lateris
laticep
latran
Latroo
Larrea
(=Lel
Lebis
Leioo
Leios
Lelep
leonis
Lepio
Lepio
seto
lepid
Lepio
Lepio
Lepio
lepid
lepid
Lepio
Lepo
gib
Lepo
Lepo
ap
br
flu
ph
Lept

- lacerata subcaudalis*, *Holbrookia*, 405
Lacerta, 73
lacertoides, *Cnemidophorus*, 493
lacertops, *Cabillus*, 46
laevis, *Ranzania*, 467, 470
laevis laevis, *Ranzania*, 470
laevis makua, *Ranzania*, 470
Lamppropeltis, 326–332
 alterna, 326–327, 330
 blairi, 330
 calligaster, 331
 doliata annulata, 331
 getulus splendida, 331
 greeri, 326–328, 330, 332
 leonis, 330
 mexicana, 328
 pyromelana knoblochi, 331
 thayeri, 329
Lanceolatus, 28
lanceolatus, *Equetus*, 29
lanfeari, *Eques*, 31
lanfeari, *Equetus*, 31
lanfeari, *Paraques*, 28, 30–31
lateralc, *Ambystoma*, 378
laterale, *Lygosoma*, 493
laterispinus, *Chamaeleo*, 411, 413
laticeps, *Eumeces*, 393
latrans, *Eleutherodactylus augusti*, 103–109
Latrodectus hasseltii, 323
Larrea, 223
 (= *Lebistes*) *reticulata*, *Poecilia*, 202
Lebistes reticulatus, 447
Leiognathus, 163
Leiostomus xanthurus, 239
Lelepris, *Cherublemma*, 288, 289
leonis, *Lamppropeltis*, 328–332
Lepidochelys kempi, 109
Lepidogobius, 424
 seta, 426, 430
lepidopterus, *Myxus*, 303
Lepidosiren paradoxa, 9
Lepidotes, 163
Lepidotus, 163
lepidum, *Etheostoma*, 195–197, 231, 198–200
lepidus, *Gobius*, 424
Lepisosteus, 163
Lepomis cyanellus, 113–115
 gibbosus, 449
Lepomis macrochirus, 7, 17, 447
Leptophidium, 212–219
 aporrhox, 216–220
 brevibarbe, 213
 fluminense, 212–213
 pheromystax, 220
Leptocottus, 38
 armatus, 38
Leptodactylus, 338
 chaquensi, 336
 chaquensis, 336–338, 340
 ocellatus, 336–338, 340
Leptomis, 183
Leptophidium emmels, 215
lepturus, *Trichiurus*, 460
Letharchus velifer, 481
Lethops, 424
leucas, *Carcharhinus*, 359
leucomelas, *Tripanurgos*, 386
leucomelas, *Tropidodipsas*, 383–387
leucophyllata, *Hyla*, 417
Leurognathus, 65, 66, 67, 84, 317
 marmorata, 67, 317
lewini, *Sphyrna*, 481
Liachirus, 292, 293
 (= *Limia*) *nigrofasciata*, *Poecilia*, 202
 (= *Limia*) *vittata*, *Poecilia*, 202
Lineatriton, 78, 81–86
Lineatriton lineolus, 78, 81, 84–85
lineolus, *Lineatriton*, 78, 81, 84–85
Liognathus, 163
Liolaemus,
 alticolor, 389
 bolivianus, 387–391
 constanzae, 389
 cyanogaster, 389
 cyanogaster brattstroemi, 486, 488
 cyanogaster cyanogaster, 486
 darwini, 391
 fitzgeraldi, 391
 gravenhorsti, 389
 micropholis, 391
 mocquardi, 387–391
 monticola, 390
 multiformis, 387–391
 nigromaculatus atacamensis, 487–488
 nigromaculatus kuhlmani, 487–488
 pantherinus, 387–391
 paulinae, 387
 pictus chiloensis, 487–488
 pictus pictus, 487–488
 platei platei, 487–488
 pulcher, 387–391
 ruibali, 390–391
 tenuis, 390
 variabilis, 387–391
 walkeri, 387–391
Litocara, 1
littoralis, *Atherinops affinis*, 37, 39
longicauda guttolineata, *Eurycea*, 393
lol, *Chelmon*, 56
Loligo peali, 239–240
longimanum, *Etheostoma*, 455
longipala, *Gobiosoma*, 482

- longipinnis*, *Microdesmos*, 482
longirostris, *Chaetodon*, 55
longirostris, *Chelmon*, 55
longirostris, *Forcipiger*, 53-62
longitarsus, *Caloglyphus*, 491
Lophius americanus, 230
Lophosaura, 73
Lophotus, 163
lumbricalis, *Typhlops*, 221-222
Lutianus, 163
Lutjanus, 163
lutrensis, *Notropis*, 183-184, 187
Lycodes frigidus, 237
Lygosoma laterale, 393, 493
lyricus, *Evorthodus*, 49
Lythrypnus, 436

macgregori, *Cirrhimuraena*, 357
macleanianus, *Aseraggodes*, 294
macrocephala, *Tilapia*, 9
macrochirus, *Lepomis*, 7, 17
macroductylum, *Ambystoma*, 137
macroductylum croceum, *Ambystoma*, 132-139
maculata, *Holbrookia*, 355
maculata approximans, *Holbrookia*, 405
maculata elegans, *Holbrookia*, 405
maculata maculata, *Holbrookia*, 68-74
maculata thermophila, *Holbrookia*, 405
maculatum, *Ambystoma*, 132-133, 137, 374, 377, 383
maculatus, *Xiphophorus*, 9-10, 202
maculipinna, *Monolene*, 194
maculosus, *Necturus*, 96
maculosus, *Oligocottus*, 351
m'calli, *Phrynosoma*, 72-73
madraspatanus, *Glyptothorax*, 472
maeandricus, *Gobiesox*, 351
Magnadigita cuchumatana, 85
major, *Chrysophrys*, 441
Makaira, 228, 470
makua, *Ranzania*, 467
Manculus, 82-5
 quadridigitatus, 82, 85
manglicola, *Gobius*, 49
manni, *Gambusia*, 202
marcianus, *Thamnophis*, 112
margaritiferae, *Carapus*, 478-480
marginalis, *Epinephelus*, 471
marina, *Avicennia*, 19
marinus, *Bufo*, 90, 93
markhami, *Chionodraco*, 50-53
markhami, *Chionodraco*, 50
marmorata, *Leurognathus*, 67, 317
martinicensis, *Eleutherodactylus*, 104
mauritiana, *Actinopyga*, 479
maximus, *Ceterhinus*, 476

megalepis, *Monolene*, 192-194
melampygus, *Caranx*, 265
melanosternon, *Acanthurus*, 358
melanura, *Tachymenis peruviana*, 487-488
melonota, *Rana clamitans*, 393
Membras martinica \times *Membras martinica*, 243
Membras martinica \times *Menidia menidia*, 243
 beryllina, 242
 beryllina \times *Membras martinica*, 243
 beryllina \times *Menidia beryllina*, 243
 beryllina \times *Menidia menidia*, 243
 menidia, 242
 menidia \times *Membras martinica*, 243
 menidia \times *Menidia menidia*, 243
Menticirrhus undulatus, 38
Metahomaloptera, 168
metcalfi, *Plethodon*, 137
Metcalfi, *Plethodon jordani*, 133
mexicana, *Lampropeltis*, 328, 330-332
mexicanus, *Astyanax*, 9-10
microcephala, *Hyla*, 417
Microdesmus, sp. 482
Microhyla, 93
micropholis, *Liolaemus*, 391
 (= *Micropoecilia*) *parae*, *Poecilia*, 202
 (= *Micropoecilia*) *picta*, *Poecilia*, 202
Micropogon undulatus, 457-458, 461
Micropterus dolomieu *dolomieu*, 115
Microsaura, 73
microscaphus, *Bufo*, 90, 93, 375
microstoma, *Monolene*, 194
milberti, *Eulamia*, 481
miliarius streckeri, *Sistrurus*, 394
millepunctatus, *Gasterosteus*, 442
mintoni, *Proacris*, 354
mirabilis, *Gillichthys*, 423-437
Mochocus, 163
mocquardi, *Liolaemus*, 387-391
modestum, *Phrynosoma*, 112
mokarran, *Sphyrna*, 480
 (= *Mollienesis*) *sphenops*, *Poecilia*, 202
Monacanthus, 361
monoceros, *Alutera*, 360
Monolene, 192-194
 asaedae, 194
 atrimana, 194
 dubiosa, 194
 maculipinna, 194
 megalepis, 192-194
 microstoma, 194
 sessilicauda, 194
Monotaxis, 437-438
montana, *Quercus*, 392
montezumae, *Xiphophorus*, 202
monticola, *Agonostomus*, 303
monticola, *Aseraggodes*, 295

- monticola*, *Desmognathus*, 67
monticola, *Liolaemus*, 390
moringa, *Gymnothorax*, 42-44
morrowi, *Aseraggodes*, 294
mossambica, *Tilapia*, 160
Moxostoma, 311
 ariommum, 311
 hamiltoni, 311, 456
 poecilurum, 463
 rhothoecum, 311, 455-456
mucronata, *Rhizophora*, 19-20
Mugil, 266, 268, 295-304
 cephalus, 268, 295-296, 298-299, 300-304, 457
 charlottae, 303
 curema, 266, 295, 298, 301, 303-304
 galapagensis, 295-299, 301-304
 hospes, 303
 peruanus, 299, 300, 303-304
 rammelsbergi, 296-297, 303-304
 setosus, 303
Mulloidichthys, 265, 266
 samoensis, 265
mullya, *Garra*, 473
multiformis, *Liolaemus*, 387-391
Mustelus canis, 480
Mustelus norrisi, 480
Mya, 239
Myctophum affine, 279
myersi, *Xyelacyba*, 289-290
Myoxocephalus quadricornis, 473, 474
Mytilus edulis, 239-240
Myxus lepidopterus, 303
niger, 303
Myzus robustus, 303

nasicus, *Heterodon*, 125, 130-131
nasutus, *Eleutherodactylus*, 103-104, 106-108
natans, *Sargassum*, 276, 277-279
Natrix, 498
 sipidon, 394
 sipidon pictiventris, 498
 sipidon sipidon, 394
Naucrates, 228
naucrates, *Echeneis*, 482
nebrascensis, *Stylenys*, 496
nebulosa, *Ctenogobius*, 19, 25-26
nebulosus, *Ameiurus* [= *Ictalurus*], 42
nebulosus, *Ictalurus*, 449
Necturus maculosus, 96
Negaprion brevirostris, 481
Namacheilus, 163
Nemachilus, 163, 179-180
Nemipterus, 437
Neoclinus, 484
 blanchardi, 484
 bryope, 484
 stephansae, 484
 uninotatus, 484
neogaeus, *Chrosomus*, 184
neogaeus, *Throsomus*, 183
Neogastromyzon, 168-169
Neomysus ciliilabus, 303
Neothunnus, 228
Nereis sp., 239, 240
nerka, *Oncorhynchus*, 116
nettingi, *Siren intermedia*, 355
Neusticurus, 139, 143
 racenisi, 143
newberryi, *Eucyclogobius*, 38
nianguae, *Etheostoma*, 1-4, 7
nicaraguensis, *Carcharhinus*, 359
nieuwenhuisi, *Gastromyzon*, 167-168, 170-171, 175
niger, *Esox*, 449
niger, *Myxus*, 303
nigricans, *Girella*, 38-39
nigricans, *Hepatus*, 358
nigrita, *Pseudacris*, 354
nigrofasciata, *Poecilia* (= *Limia*), 202
nigromaculatus atacamensis, *Liolaemus*, 487, 488
nigromaculatus kuhlmani, *Liolaemus*, 487, 488
nigrum, *Ambystoma*, *rosaceum*, 371-377
nigrum, *Etheostoma*, 455-456
nigrum nigrum, *Etheostoma*, 5, 7
nigrum susanae, *Etheostoma*, 5
nilotica, *Tilapia*, 9
Nocomis, 183
Noemacheilus, 163
normani, *Aseraggodes*, 294
norrisi, *Mustelus*, 480
notata, *Uma*, 396
Notemigonus crysoleucas, 447, 449
notogramma, *Percina*, 311
Notothenia rossii, 15
Notropis, 181, 450-456, 463
 altipinnis, 455
 amoenus, 451-455
 atherinoides, 447, 455
 bifrenatus, 449
 blennius, 455
 chrysocephalus, 184, 186-187
 chrysocephalus chrysocephalus, 181-192
 chrysocephalus chrysocephalus × *Notropis rubellus*, 187
 chrysocephalus × *Notropis rubellus*, 183
 cornutus, 115, 181-192
 cornutus × *Notropis rubellus*, 183, 187
 galacturus, 5
Notropis lutrensis, 183-184, 187
 photogenis, 455
 rubellus, 455-456
 scabriceps, 455
 scepticus, 451-455

- scepticus-semperaster*, 456
semper, 456
semperasper, 450-456
spilopterus, 187
stramineus, 455
umbratilis cyanocephalus, 113-115
venustus, 183-184, 187
whipplei, 187
Noturus gilberti, 311
novaeguineae, Culcita, 480
nubicola, Eleutherodactylus, 103-108
nuchalis, Hybognathus, 462-466
nummifer, Antennarius, 230
Nyctimantis, 62
Nyctimystes, 62

obsoleta obsoleta, Elaphe, 394
Occa verrucosa, 477
occidentalis, Cnemidophorus costatus, 100, 102
occidentalis, Cnemidophorus sacki, 98, 100
ocellata, Starksia, 482
ocellata, Thamnophis cyrtopsis, 112
ocellata, Thamnophis dorsalis, 112
ocellatus, Aseraggodes, 292-294
ocellatus, Bothus, 275-279
ocellatus, Leptodactylus, 336-40
ocrophaeus carolinensis, Desmognathus, 315-322
ochrophaeus, Desmognathus, 315-322
occoe, Desmognathus, 315-322
octolineatus, Cnemidophorus, 148-157
ocyurus, Sclator, 357-358
odoratus, Sternotherus, 393
Oedipina uniformis, 85
Ogocephalus, 163
olidus, Hypomesus, 477
Oligocephalus, 1, 7
Oligocottus maculosus, 351
Oncocephalus, 163
Oncorhynchus nerka, 116
ontariensis, Triglopsis, 473
opacum, Ambystoma, 134, 377-383, 392
Ophedrys aestivus, 394
Ophicephalus, 163, 180
punctatus, 176-177, 179-180
Ophichthus, 164
Ophichthys, 164
Opistognathus, 164
Oplectognathus, 164
oregonensis, Ptychocheilus, 447
Oregonichthys, 477
crameri, 477
cumingii, 477
Oreophis boulengeri, 328
ordinoides, Thamnophis, 350
ornata, Pseudacris, 354
ornatus, Urosaurus, 404

palleucus, Pseudotriton, 499
pantherinus, Liolaemus, 387, 391
Pantodactylus schreibersi schreibersi, 493
Panopeus, 239-240
herbsti, 240
papilio, Periophthalmus, 24
paradoxa, Lepidosiren, 9
parae, Poecilia (=Micropoecilia), 202
Paralabrax clathratus, 38
Paralichthys, 36-37
californicus, 36
Paramyrus kellersi, 115
Pareques, 27-32
acuminatus, 28, 30-31
fuscovittatus, 28, 30-31
lanfeari, 28, 30-31
viola, 28-31
parietalis, Thamnophis sirtalis, 112
Parvimolge, 78, 82-86
praecellens, 80, 85
richardi, 80, 85-86
townsendi, 78, 80-81, 83-85
Parupeneus, 266-268
porphyreus, 267
parvipinnis, Fundulus, 35, 39
patronus, Brevoortia, 39-43, 458-460
pauciradiatus, Gastromyzon, 168, 174
paulensis, Siphonops, 490
paulinae, Liolaemus, 387
peali, Loligo, 239, 240
pearyi, Arctogadus, 236
pelamis, Katsuwonus, 226, 227
pennatululus, Thorius, 79, 80
Pentapodus, 437
Peprius alepidotus, 482
burti, 482
Perca fasciata, 471
flavescens, 282-287, 449
scriba, 471
Percina caprodes, 195, 196, 231
notogramma, 311
Periophthalmus, 18-27
papilio, 24
sobrinus, 18, 21, 23
perlapsus, Desmognathus, 315-318
perplexus, Cnemidophorus, 149
perplexus, Cnemidophorus sexlineatus, 149, 151, 153, 155
perspicillatus, Scarus, 267
peruanus, Mugil, 299-300, 303-304
Pervagor spilosoma, 265
peruviana assimilis, Tachymenis, 487-488
peruviana melanura, Tachymenis, 487-488
peruvianus quadrivittata, Tropidurus, 487, 488
Pervagor spilosoma, 267
petersi, Gnathonemas, 9
phaeocrypta, Hyla, 354

- Phaeognathus*, gen. nov., 66
hubrichti, sp. nov., 67-68
Phallichthys, 204-207
amates, 202, 207
Phalloceros, 204-205
caudimaculatus, 202
Phallotorynus, 204-205
incundus, 202
pheromystax, *Lepophidium*, 220
Pholis, 477-478
schultzi, 477-478
photogenis, *Notropis*, 455
Phoxinus, 179
Phrynosoma cornutum, 73, 112
m'calli, 72-73
modestum, 112
platyrhinos, 73
Phycis chesteri, 229-230
Phyllomedusa, 62, 64
Phyllophichthys xenodontus, 357
Physa gyrina, 10
picta, *Chrysemys*, 109
picta, *Hyla*, 417
picta, *Poecilia*, (= *Micropoecilia*), 202
pictiventris, *Natrix sipedon*, 498
pictus chiloensis, *Liolaemus*, 486, 488
pictus pictus, *Liolaemus*, 486, 488
pilchardus, *Clupea*, 39-42
Pimelepterus, 357
Pinnixia, 239
cylindrica, 240
Pinus chihuahuana, 375
pipiens, *Rana*, 77, 181, 184, 197, 344, 375, 495
pipiens phenocephala, *Rana*, 393
Plallichthys amates, 202
planiceps, *Desmognathus*, 67
planirostris, *Eleutherodactylus*, 104
planirostris, *Eleutherodactylus ricordii*, 103-104
Planorbis, sp., 10
platei platei, *Liolaemus*, 487-488
platessa, *Pleuronectes*, 447
Platichthys stellatus, 485
platycephalus, *Hydromantes*, 85
platyrhinos browni, *Heterodon*, 127
platyrhinos, *Heterodon*, 125-132
platyrhinos, *Phrynosoma*, 73
plecostomus, *Hypostomus*, 9
Plethodon, 82-83
cinereus, 95-98, 110-112
dorsalis, 392
dorsalis dorsalis, 392
glutinosus, 82, 85
glutinosus glutinosus, 133, 392
jordani metcalfi, 133
metcalfi, 137
Pleuronectes platessa, 447
pleurospilus, *Poeciliopsis*, 202
pluvialis, *Eumeces anthracinus*, 393
podostemone, *Etheostoma*, 456
Poecilia, 202-210
(= *Lebistes*) *reticulata*, 202
(= *Limia*) *nigrofasciata*, 202
(= *Limia*) *vittata*, 202
(= *Micropoecilia*) *parae*, 202
(= *Micropoecilia*) *picta*, 202
(= *Mollienesia*) *sphenops*, 202
parae, 202
reticulata, 209
Poecilichthys, 1, 7
Poeciliopsis, 203-205
pleurospilus, 202
poecilurum, *Moxostoma*, 463
Polinices, 239
duplicata, 240
Polydactylus, 265
sexfilis, 265, 268
Polydora, 22
Poronotus triacanthus, 482
porphyreus, *Parupeneus*, 267
porphyriticus, *Pseudotriton*, 392, 395
porphyriticus porphyriticus, *Pseudotriton*, 392
portoricensis, *Eleutherodactylus*, 106, 103-108
Posidonia, 471
postremis, *Thamnophis dorsalis*, 112
praecellens, *Parvimolge*, 80, 85
praevis, *Bufo*, 354
Pranesus insularum, 265-6
pressicauda, *Haptoglossa*, 65
Prionodactylus, 142
vertebralis, 142
priscus, *Chiropterotriton*, 85
Pristipomoides, 266
Proacris, 354
mintoni, 354
proboscideus, *Chaenomugil*, 295, 298, 301, 303-4
Progastromyzon, 168
griswoldi, 167
Prognathodes aculeatus, 54
propinqua, *Holbrookia*, 405
propinqua propinqua, *Holbrookia*, 405
Protomyzon, 168
borneensis, 167
whiteheadi, 167
Pseudacris, 94
brachyphona, 395
nigrita, 354
ornata, 354
triseriata, 354
Pseudecheneis sulcatus, 471
Pseudemys floridana floridana, 339
floridana suwaniensis, 339
scripta elegans, 222-223, 350

- Pseudoeurycea cephalica*, 85
galeannae, 85
scandens, 85
Pseudogramma, 266
Pseudotriton brachyphona, 395
palleucus, 499
porphyriticus, 392, 395
porphyriticus porphyriticus, 392, 395
ruber ruber, 392
Pseudotsuga, 375
Pseudoxiphophorus, 203-207
bimaculatus, 202
Ptilostomis, 495, 496
Ptychocheilus oregonensis, 447
Ptychophyla, 414
pulcher, *Equetus*, 28
pulcher, *Liolaemus*, 387-391
pulmonaris, *Thorius*, 78-79, 84-85
punctata, *Alutera*, 360
punctatus, *Bufo*, 89, 90-91, 93
punctatus, *Ophicephalus*, 176-177, 179-180
punctatus stictogenys, *Diadophis*, 394
punctipectophorus, *Coryphopterus*, 482
punctulatus, *Gastromyzon*, 168, 172-173
purpureus, *Anoplarchus*, 351
pygea, *Seminatrix*, 499
pygmaeus, *Xiphophorus*, 202
pyroferus, *Acanthurus*, 358
pyroferus kittlitz Acanthurus, 358
pyromelana, *Lampropeltis*, 331
pyromelana knoblochi, *Lampropeltis*, 331

quadracus, *Apeltes*, 442-450
quadracus, *Gasterosteus*, 442
quadricornis, *Myoxocephalus*, 473, 474
quadridigitatus, *Manculus*, 82, 85
quadrivittata, *Tropidurus peruvianus*, 487-488
quercicus, *Bufo*, 90-94
Quercus montana, 392
Quietula, 424
Quintana, 204-206
atrizona, 202, 207

racenisi, *Neusticurus*, 143
Raja eglanteria, 239
erinacea, 239
rammelsbergii, *Mugil*, 296-304
Rana, 345, 354-355
catesbeiana, 341, 393
clamitans, 77, 341, 393
clamitans melonota, 393
piapiens, 77, 181, 184, 197, 344, 375, 495
piapiens spheocephala, 393
sylvatica, 74, 495
randalli, *Acanthurus*, 358

Raneya, 212
fluminensis, 213-214
Ranzania, 228
laevis, 467
laevis laevis, 470
laevis makua, 470
makua, 467
truncata, 467
Regalecus glesne, 481
regalis, *Cynoscion*, 239-40
reinhardti, *Careproctus*, 237
Remora remora, 482
resaceum nigrum, *Ambystoma*, 377
reticulata, *Hyla*, 417
reticulata, *Poecilia* (= *Lebistes*), 202, 209
reticulatus, *Lebistes*, 447
Rhinoptera bonasus, 482
Rhizophora, 20
mucronata, 19-20
rhotocum, *Moxostoma*, 311, 455-6
ricei, *Cottus*, 310
richardi, *Parvimolge*, 80, 85, 86
Richardsonius, 270-273
balteatus, 270, 447
balteatus balteatus, 272
balteatus hydrophlox, 270
egregius, 270
ricordi, *Eleutherodactylus*, 107
ricordi planirostris, *Eleutherodactylus*, 103-104
ringens, *Xanthichthys*, 267
rivularis, *Taricha*, 351, 352
robertmertensi, *Hyla*, 417
robustus, *Myzus*, 303
rosaceum, *Ambystoma*, 371-377
rosaceum nigrum, *Ambystoma*, 377
rosaceum sonoraensis, *Ambystoma*, 377
rossii, *Notothenia*, 15
rubellus, *Notropis*, 456
rubellus, *Notropis* × *Notropis chrysocephalus*, 183
rubellus, *Notropis* × *Notropis chrysocephalus chrysocephalus*, 187
rubellus, *Notropis* × *Notropis cornutus*, 183, 187
ruber, *Crotalus*, 489
ruber ruber, *Crotalus*, 418, 422
ruber ruber, *Pseudotriton*, 392
ruber, *Sebastodes*, 280
rubra, *Tantilla*, 144, 147
rudis, *Chamaeleo bitaeniat*, 411, 413
rufescens, *Bolitoglossa*, 85
ruibali, *Liolaemus*, 390-391

sacki, *Cnemidophorus*, 98, 352-353
sacki exsanguis, *Cnemidophorus*, 149
sacki gularis, *Cnemidophorus*, 493
sacki huico, *Cnemidophorus*, 98

- sacki occidentalis*, *Cnemidophorus*, 98, 100
sacki scalaris, *Cnemidophorus*, 98
sacki semifasciatus, *Cnemidophorus*, 149
safgha, *Ambassis*, 19
sagitta, *Etheostoma*, 1, 5, 7
sagitta sagitta, *Etheostoma*, 2, 3, 5, 7
sagitta spilotum, *Etheostoma*, 2, 3, 5
saisii, *Glyptosternum*, 472
Salamandra, 83
salar, *Salmo*, 483
Salmo clarki, 117, 158
 gairdneri, 158
 salar, 483
 trutta, 447-8
Salvelinus alpinus, 359
 fontinalis, 15, 158, 359
samoensis, *Mulloidichthys*, 265
sandvicensis, *Kuhlia*, 265
sapidus, *Callinectes*, 239-240
Sardina, 40
Sargassum, 279
 natans, 276-279
saturna, *Sciaena*, 28
sauritus, *Thamnophis*, 112
sayi, *Dasyatis*, 239-241
scabriceps, *Notropis*, 455
scalaris, *Cnemidophorus*, 102
scalaris, *Cnemidophorus sacki*, 98
scandens, *Pseudoeurycea*, 85
Scaphiopus, 89, 94, 354
Scarus perspicillatus, 267
Sceloporus torquatus, 398
 undulatus hyacinthinus, 393
septicus, *Notropis*, 451-5
septicus-semperasper, *Notropis*, 456
schreibersi, *Pantodactylus*, 493
Sciaena, 28, 31
 deliciosa, 28
 fasciata, 28
 saturna, 28
Sciaenidae, 27-32
scierus, *Hadropterus*, 195-197, 231
Scincella, 113
scitula, *Holbrookia texana*, 405
schoepfii, *Alutera*, 360
schreibersi schreibersi, *Pantodactylus*, 493
schultzi, *Pholis*, 477-478
Scomber scombrus, 115
scoparia, *Uma*, 396
scopas, *Zebrasoma*, 237-238
scriba, *Perca*, 471
scriba, *Serranus*, 471
scripta, *Alutera*, 360
scripta elegans, *Pseudemys*, 222-223
Scyllium, 43
Sebastodes, 279-280
 alexandri, 280
 auriculatus, 279-282
 auriculatus dalli, 280
 dalli, 280
 ruber, 280
Sectator azureus, 357
 ocyurus, 357-358
sectatrix, *Kyphosus*, 482
sellare, *Etheostoma*, 311
semifasciatus, *Cnemidophorus sacki*, 149
Seminatrix pygea, 499
Semotilus atromaculatus, 4
semper, *Notropis*, 456
semperasper, *Notropis*, 450-6
semperasper-septicus, *Notropis*, 456
septemspinus, *Crago*, 239-40
septentrionalis, *Hyla*, 354
serpentina serpentina, *Chelydra*, 393
Serranellus, 471
 cabrilla, 471
 subligarius, 471
Serranus, 471
 guttata, 19
 scriba, 471
sessilicauda, *Monolene*, 194
seta, *Gillichthys*, 423-437
seta, *Lepidogobius*, 426, 430
setappinis, *Vomer*, 481
setosus, *Mugil*, 295, 298, 303
sexfilis, *Polydactylus*, 265, 268
sexlineatus, *Cnemidophorus*, 155, 493
sexlineatus gularis, *Cnemidophorus*, 149, 151
sexlineatus perplexus, *Cnemidophorus*, 149, 151, 155
shastae, *Hydromantes*, 85
shumardi, *Hadropterus*, 231
signifera, *Crinia*, 93
silus, *Typhlops*, 221
simus, *Heterodon*, 125
Sinogastromyzon, 168
sipidon, *Natrix*, 394
sipidon pictiventris, *Natrix*, 498
sipidon sipidon, *Natrix*, 394
Siphonops, 383-7
 cervinus, 385
Siphonops annulatus, 490
 paulensis, 490
Siremba imberbis, 289
Siren intermedia, 355
 intermedia nettingi, 355
Siriella, 62
sirtalis dorsalis, *Eutaenia*, 112
sirtalis parietalis, *Thamnophis*, 112
sirtalis sirtalis, *Thamnophis*, 393
sirtalis, *Thamnophis*, 112, 350-351
Sistrurus miliarius streckeri, 394
sonoraensis \times *roseaceum*, *Ambystoma*, 377
smithi, *Brevoortia*, 42
smithi, *Hyla*, 417
snyderi, *Apogon*, 265

- Snyderidia canina*, 478
sobrinus, *Periophthalmus*, 18, 21, 23
solanderi, *Acanthocybium*, 482
sonoraensis, *Ambystoma rosaceum*, 371-377
speciosus, *Bufo*, 89-91, 93-94
spectabile, *Etheostoma*, 195-197, 231
Spelerpes, 82
sphenocephala, *Rana pipiens*, 393
sphenops, *Poecilia* (= *Mollienesia*), 202
Sphyraena, 266
barracuda, 265-266
Sphyrna bigelowi, 480
lewini, 481
mokarran, 480
tudes, 480
spiloides, *Elaphe obsoleta*, 394
spilopterus, *Notropis*, 187
spilosoma, *Pervagor*, 265, 267
spilotum, *Etheostoma*, 1
spilotum, *Etheostoma*, *sagitta*, 2, 3
spilotum spilotum, *Etheostoma*, 7
spinifer, *Acanthonus*, 288-289
spinifer, *Trionyx*, 355
spinifer, *Trionyx spinifer*, 356
spinus, *Chamaeleo*, 411, 413
Spirinchus dilatatus, 476
Spirinchus starksi, 476
Spirinchus thaleichthys, 476-477
splendida, *Lampropeltis getulus*, 311
spongicola, *Evermannichthys*, 482
Squalus acanthias, 228
starksi, *Spirinchus*, 476
Starksia ocellata, 482
stebbinsi, *Ambystoma tigrinum*, 376
stellatus, *Platichthys*, 485
stephensae, *Neoclinus*, 484
Sternothaerus odoratus, 393
stictogenys, *Diadophis punctatus*, 394
stigmaticus, *Gobionellus*, 49
stimpsoni, *Triglopsis*, 473
Stizostedion vitreum, 282-287
storeriana, *Hybopsis*, 463
straitula, *Bolitoglossa*, 85
stramineus, *Notropis*, 455
strangulatus, *Euspondylus*, 139-143
streckeri, *Sistrurus miliarius*, 394
Streptococcus hemolyticus, 323
striatus, *Ctenochaetus*, 237-238
Stylemys, 476
nebrascensis, 496
Stylephorus, 164
subcaudalis, *Holbrookia lacerata*, 405
subligarius, *Centropristis*, 470
subligarius, *Serranellus*, 471
sulcata, *Geochelone*, 498
sulcatus, *Pseudeheneis*, 471
sulcatus, *Typhlops*, 222
sumichrasti, *Hyla*, 414, 417
sumichrasti, *Thamnophis dorsalis*, 112
susanae, *Etheostoma nigrum*, 5
suspectum, *Heloderma*, 491
suwaniensis, *Pseudemys floridana*, 339
sylvatica, *Rana*, 74, 495
Symbranchus, 164
Synanceia, 164
Synanceja, 164
Synancia, 164
Synbranchus, 164
Syngnathus sp., 19, 37
Tachymenis, 487-488
peruviana assimilis, 487-488
peruviana melanura, 487-488
Tantilla, 144-148
coronata, 147
coronata coronata, 394
diabola, 144, 147
rubra, 144, 147
Taricha, 83, 135, 137, 351, 352
granulosa, 83, 351-352
rivularis, 351-352
torosa, 135
Tauredophilidium, 288, 289, 291
hextii, 289
Taxodium distichum, 392
teguixin, *Tupinambis*, 494
Teius, 493
teyou, 493
teius teyou teyou, 493
telchitta, *Glyptothorax*, 472
tempeli, *Chamaeleo*, 411, 413-414
tenuis, *Chamaeleo*, 411, 413
tenuis, *Liolaemus*, 390
Terrapene carolina carolina, 393
terrestris americanus, *Bufo*, 393
terrestris, *Bufo*, 90, 93
Testudo, 496
Tetrodon, 164
texana, *Holbrookia*, 405
texana scitula, *Holbrookia*, 405
texana texana, *Holbrookia*, 405
texanum, *Ambystoma*, 377-83
teyou, *Teius*, 493
teyou teyou, *Teius*, 493
Thalamita crenata, 19
Thalamita, *sp.*, 19
Thalassoma, 238, 267, 269
bifasciatum, 238
duperreyi, 267
thaleichthys, *Spirinchus*, 476-477
Thamnophis cyrtopsis, 112, 350-351
cyrtopsis cyrtopsis, 112
cyrtopsis ocellata, 112
dorsalis cyclides, 112

- dorsalis dorsalis*, 112
dorsalis ocellata, 112
dorsalis postremis, 112
dorsalis sumichrasti, 112
elegans, 350
marcianus, 112
ordinoides, 350
sauritus, 112
sirtalis, 112, 350–351
sirtalis parietalis, 112
sirtalis sirtalis, 394
thayeri, *Lampropeltis*, 328–32
Therapon theraps, 19
theraps, *Therapon*, 19
thermophila *Holbrookia maculata*, 405
thoburni, *Xenomugil*, 295, 298–299, 301
Tholichthys, 56
thompsoni, *Trigloopsis*, 473
Thorius, 78–86
 pennatulus, 79, 80
 pulmonaris, 78–79, 84–85
Thunnus albacares, 482
Thunnus atlanticus, 482
tigrinum, *Ambystoma*, 96, 134–137, 495
tigrinum stebbinsi, *Ambystoma*, 376
tigrinum tigrinum, *Ambystoma*, 374–376
Tilapia macrocephala, 9
 mossambica, 160
 nilotica, 9
Tilapia, *sp.*, 9
Tomeurus, 204, 205, 210
 gracilis, 202, 203, 208
torosa, *Taricha*, 135
torquatus, *Sceloporus*, 398
townsendi, *Gobius*, 426
townsendi, *Parvimolge*, 78–85
Toxinum viperæ ammodytes, 323
Trematomus bernacchii, 11–18
triacanthus, *Poronotus*, 482
Trichiurus lepturus, 460
Trichomycterus, 179
Triglops forficata, 477
Trigloopsis ontariensis, 473
 stimpsoni, 473
 thompsoni, 473
Trimma, 46
Trionyx, 356
 spinifer, 355
 spinifer spinifer, 356
triostegus, *Acanthurus*, 57, 237–238
Tripanurgos, 386
 compressus, 386
 leucomelas, 386
Triprión, 62
triseriata, *Pseudacris*, 354
tristis, 359
Tropidodipsas, 383–387
 leucomelas, 383–387
Tropidurus peruvianus quadrivittata, 487
truncata, *Ranzania*, 467
trutta, *Salmo*, 447–448
tudes, *Sphyrna*, 480
Tupinambis teguixin, 494
Typhlogobius, 424
Typhlops, 221–222
 braminus, 221
 jamaicensis, 221
 lumbricalis, 221–222
 silus, 221
 sulcatus, 222
tyrannus, *Brevoortia*, 42, 239

Uca
 annulipes, 19
 chlorophthalmus, 19–20, 22
 urvillei, 19
Ulocentra, 5, 7
Ulva, 351
Uma, 68, 405
 inornata, 396
 notata, 396
 scoparia, 396
umbratilis cyanocephalus, *Notropis*, 113–115
undulatus hyacinthinus, *Sceloporus*, 393
undulatus, *Menticirrhus*, 38
undulatus, *Micropogon*, 457–458, 461
uniformis, *Oedipina*, 85
uninotatus, *Neoclinus*, 44
Upogebia, 22
urodelus, *Cephalopholis*, 265
Urosaurus ornatus, 404
urvillei, *Uca*, 19
uter, *Cephaloscyllium*, 475

vacca, *Damalichthys*, 265, 267–268
valenciennes, *Acanthurus dorensis*, 358
valeriae, *Haldea*, 394
valliceps, *Bufo*, 77, 88–94, 344
valliceps × *woodhousei*, *Bufo*, 89, 91, 93
Varanus, 73
variabilis, *Liolaemus*, 387–391
variatus, *Xiphophorus*, 202
Varicus *gen. nov.*, 46–47, 49
 bucca *sp. nov.*, 47
variegata, *Bombina*, 94
velifer, *Letharchus*, 481
ventralis, *Alutera*, 361
ventralis draconoides, *Callisaurus*, 405
ventralis draconoides, *Callisaurus* × *gabbi*, 405
ventriosum, *Cephaloscyllium*, 475
vermiculatus, *Esox americanus*, 235–236
verrucosa, *Occa*, 477
versicolor, *Calotes*, 69, 73
versicolor, *Hyla*, 93
versicolor versicolor, *Hyla*, 393

vertebralis, *Prionodactylus*, 142
venustus, *Notropis*, 183-4, 187
vicinus, *Gymnothorax*, 42-43
viola, *Eques*, 29
viola, *Pareques*, 28-31
viridescens, *Diemictylus*, 96
vitreum, *Stizostedion*, 282-287
vittata, *Poecilia* (= *Limia*), 202
viviparus, *Zoarcas*, 447
Vomer setapinnis, 481
vulgaris, *Chameleon*, 68

Wallago, 176, 180
Wallago attu, 176-177
walkeri, *Liolaemus*, 387-391
werneri, *Chamaeleo*, 411, 413
whipplei, *Notropis*, 187
whiteheadi, *Protomyzon*, 167
williamsoni, *Gymnarchus*, 482
woodhousei, *Bufo*, 90-91, 93, 334-335
woodhousei fowleri, *Bufo*, 393
woodhousei woodhousei, *Bufo*, 333
woodhousei × *americanus*, *Bufo*, 89, 93
woodhousei × *valliceps*, *Bufo*, 89, 91, 93

wrightii, *Batrachoseps*, 82
wrightii, *Desmognathus*, 82, 85

Xanthichthys ringens, 267
xanthurus, *Leiostomus*, 239
xenodontus, *Phyllophichthys*, 357
Xenomugil, 295
thoburni, 295, 298-299, 301
xenorhinus, *Chamaeleo*, 411, 413
Xiphister atropurpureus, 351
Xiphophorus, 204-6, 209-10.
couchianus, 202
helleri, 9, 202, 206
maculatus, 9, 10, 202, 206
montezumae, 202
pygmaeus, 202
variatus, 202
Xyelacyba, 288-9
myersi, 289-90
Xyrichtys, 238-239

Zanclus, 267, 269
Zebrasoma scopas, 237-238
Zoarcas viviparus, 447
zopherus, *Cottus*, 310

SUBJECT INDEX

Acanthuridae, 237-239
acanthurids, 237-238, 269
acetylcholine, 8
acetylcholinesterase, 8
adhesive apparatus, fish, 471-473
aggression, tail slapping, 396-405
air flow mechanics, toads, 94
Alabama, 65-68, 391
Alabama, coastal plain, 65-68
albinism, fish, 482-483
albino, cownose ray, 482-483
altitudinal variation, teiid lizards, 141
amphibians, 391-396
anal fin ray count variations, 270-279
analysis, clines, 125-132
anatomy (see morphology)
anatomy, larynx, toads, 88-95
annectant subspecies of whiptail lizards, description, 148
annelid worms, 239
antarctic fish, growth, 11
antarctic fish, new, 50
anticoagulant, 222
anticoagulant, plasma, turtle, 222
Archbold expeditions, 116
arctic char, 359

armored catfish, 10
arrow darter, 1, 4
artificial hybridization, atherinids, 242-244
asymmetry, flatfish, 485-486
Atherinidae, 242, 265
atherinids, artificial hybridization, 242-244
auris, columella, 69
avoidance reactions, fish, 42

Balistidae, 267
barnacles, 19
barracuda, 268
behavior courtship, *Ambystoma*, 132-139
behavior, courtship and mating of poeciliid fish, 201-12
behavior, social, lizard 396-405
behavior, spawning, surgeonfish, 237
Beryciformes, 265
black-headed snake, 144-148
black prickleback, 351
black sculpin, 311
Black Sea, 296
blind cavefish, 10
blue tank, 238
body proportions, 316-322
body proportions, *Bufo*, 333-336

- Bornean fishes, 166-176
 Bothidae, 194
 Bothinae, 276
 bottom fish nototheniid, 17
 breeding behavior, red-backed salamander, 95-8
 breeding season, toads, 488
 brook trout, 158-161, 359
 Brotulidae, 215, 288-289
 brown rockfish, 279
 bull's eye fish, 19
 bull shark, 359
 butterflyfishes, new, 523-526

 caddisfly larvae, 495-496
 caecilian, egg laying, 490
 calcifications, plethodontids, 79
 call analysis, toads, 90
 Carangidae, 265
 carapid fishes, ecology, 479-480
 carapid fishes, larval, 479-480
 Carapidae, 479
 catfish, armored 10
 caudal skeleton, perciform, 265-274
 cavefish, blind, 10
 Centrarchidae, 183
 Ceylon, 292-295
 Chaenichthyidae, 50
 Chaetodontidae, 53
 Chamaeleontidae, 73
 Chameleons, 411-414
 char, 114
 characin, Congo, 10
 characin, lampnose, 10
 Chile expedition, reptiles, 486-488
 Cichlidae, 9
 clams, 239
 cleavage, *Eleutherodactylus*, 106
 clines, analysis, 125-132
 cloud forests, 414
 coastal plain, Alabama, 65-68
 cockscomb, 350
 color pattern, 319
 color pattern, whiptail lizards, 100-102
 color, tree frog, 624
 Colorado, 199
 Colorado river system, 199
 coloration, *Alutera*, 362
 fishes, 226-228
 Gillichthys, 427-8, 431
 Hyla, 414-417
 Hybognathus, 465
 salamander, 374
 Colubridae, 486
 columella auris, 69
 common shiners, 115, 188
 comparison, *Cottus*, 313-314
 Notropis, 454
 teiid lizards, 142
 whiptail lizards, 150
 Lampropeltis, 328
 mallet, 298-299
 concentration, hydrogen ion, 34
 Congo characin, 10
 cooling measures, venom, 323-325
 coronal spines, variation in, 279-82
 costal grooves, salamander, 65
 cottid fishes, 305-315
 counts and measurements, meristics, ophidoids, 291-92
 counts and measurements, morphometry, ophidoids, 291-92
 counts and measurements, mullet, 296-297
 counts and measurements, Soleidae, 293-94
 counts, fin ray, 2
 counts, Ophidiidae, 216
 courtship behavior, *Ambystoma*, 132-139
 courtship, desert iguanas, 396-405
 cownose ray, albino, 482-483
 crabs, 239
 crabs, fiddler, 19
 Cretaceous, 392
 croakers, 234, 457
 Cumberland drainage, 1, 4
 Cumberland plateau, 391
 Cumberland river, 1
 Cumberland river system, 2
 cutlass fish, 460
 cutthroat trout, 117
 cyprinid fish, new, 450-456
 Cyprinidae, 181
 cyprinodont fishes, 201-212
 cyprinoid fishes, 166-176

 darter, 4
 darter, arrow, 4
 darter, Niangua, 4
 darters, greenthroat, 198
 dasyatoid rays, 239-241
 day-night variation, *Ranzania*, 467-470
 deepwater ophidioid fish, 288-292
 Delaware Bay, 239-241
 Denticidae, 437-441
 dentitional variation, mullet, 300-301
 deme, 270-279
 description, annectant subspecies of whiptail lizards, 148
 desert iguanas, 396-405
 courtship, 396-405
 dominance, 396-405
 desiccation, eggs, salamander, 110-112
 Desmognathidae, 65
 development, *Hyla*, 344-346
 development, salamander, 96-97
 Dichistiidae, 358
 digestive tract, contents garter snake, 351

- display behavior, 396-405
 dissolved oxygen, 35
 distribution
 Atlantic, Ridley turtle, 109-110
 darter, 1-8
 Desmognathus, 321-322
 flounder 274-279
 Gastromyzon, 167-168
 Hyla, 414-417
 lanternfish larvae, 274-79
 longfin hake, 229-230
 Notropis, 189-90
 Plethodontidae, 315-322
 Pseudemys, 350
 reptiles, 391-396, 486-488
 salamander, 371-377
 softshell turtle, 354-355
 Tantilla, 145
 teiid lizards, 139, 493-494
 Tropidodipsas, 383-387
 Typhlops, 221-222
 western lesser siren, 354
 whiptail lizards, 98-103, 148-157
 distribution and salinity, 234-235
 dolphin, 226
 dominance, desert iguanas, 396-405
 dorsal pattern, hognose snake, 125-132
 dorsal scale reductions, kingsnake, 237
 dorsal scutellations, whiptail lizards, 98-100
 drainage, Cumberland, 4
 drainage, Gasconade River, 1
 drainage, Kentucky, 4

 ear, *Holbrookia*, 354
 ear region, *Holbrookia* muscles, 69
 early developmental stages, *Ranzania*, 467-470
 East Africa, 411-414
 eastropic expedition, 296
 Echelidae, 115
 ecology,
 carapid fishes, 479-480
 Gillichthys, 430, 433
 Notropis, 455-456
 Ecuador, 140
 eel, 115
 eels, range extensions, 357
 eight striped whiptail lizard, 151
 egg
 caecilian, 490
 Cottus, 314
 fish, 199
 Hyla, 341-342
 rafts, fish, 230-231
 rehydration, salamander, 110-112
 salamander, 495-496
 two-cell stage, 341

 elasmobranchs, 239
 electrophoresis, 336-340
 elementary system, *Eleutherodactylus*, 104
 Embiotocidae, 265
 embiotocid-pomacentrid-labroid, 269
 embiotocids, 267
 embryology, *Eleutherodactylus*, 103-109
 embryonic development, *Hyla*, 341-349
 Endeavour, 51
 environmental factor, water levels, toads, 488
 etheostomatid fishes, 195-198
 etymology, *Notropis*, 456
 expedition, eastropic, 296
 expedition, Yale-Seychelles, 292

 feeding behavior, *Taricha*, 351-52
 feeding, mud-skipper, 22
 fiddler crab, 19, 22
 fin growth, sculpin, 473-475
 fin ray counts, 2, 55
 fin ray counts, *Fercipiger*, 55
 first aid treatment, rattlesnake bites, 418-422
 fish, adhesive apparatus, 471-473
 albinism, 482-483
 avoidance reactions, 42
 bull's eye, 19
 cutlass, 460
 deepwater ophidioid, 288-292
 egg rafts, 230-231
 eggs, 199
 fauna, Florida, 480-482
 headlight, 279
 hermaphroditism, 471
 histology, 472
 hybridization, 181-192
 incubation period, 198-200
 injuries, 456-461
 integrations, 181-192
 kyphosid, 357
 photography, 241-242
 sensory canals, 176-181
 sisorid, 471-473
 sparoid, 437-441
 sperm, 199
 temperature survival, 196
 temperature tolerances, 195-198
 vertebral counts, 443
 fishes
 Bornean, 166-176
 coloration, 226-228
 cyprinodont, 201-212
 cyprinoid, 166-176
 pediculate, 230
 etheostomatid, 195-198
 first records, 475-476
 labroid, 268-269
 ophidiid, 212-221
 physiology, 8

- plectognath, 267
 salinity tolerances, 32
 touch receptors, 42-46
 flatfish, 192-195
 flatfish asymmetry, 485-486
 flatfish, meristic counts, 193
 Florida, 354-355
 Florida, fish fauna, 480-482
 flounder, distribution, 274-279
 food analysis, rays, 240
 food, Atlantic Ridley turtle, 109-110
 food, garter snake, 350-351
 food habits, ray, 239-241
 forests, cloud, 414
 fourhorn sculpin, 473-475
 fourspine stickleback, 442-450
 fringed-toed lizards, 396-405
 frog, serum proteins, 336-340
 frogfish, ocellated fringed, 230-231
 frogfish, spawning behavior, 230-231

 Galapagos Islands, 295-304
 garter snake, digestive tract contents, 351
 garter snake, food, 350-351
 gas bladder, *Raneya*, 213
 Gasconade River drainage, 1
 gastropods, 239
 gelatinous envelopes, *Hyla*, 341-342
 geographic variation in *Heterodon*, 125-132
 Georges Bank, 274-279
 genus, new, 212-221
 gila monster, trailing device, 491-492
 Girellidae, 358
 glassy, 19
 goatfishes, 266
 gobies, 19
 gobioid fish, new, 46
 goldfish, 8, 461
 goosefish, 230
 grass pickerel, 235
 grass pickerel, supernumary fins, 235
 great hammerhead, 480
 greenthroat darters, 198
 ground skink, 493
 growth, antarctic fish, 11
 growth rates, wood frog, 75
 growth, wood frog, 74-77
 Guadalupe, 199
 Guadalupe River System, 199
 gulf menhaden, lateral lines, 39-42
 Gulf of California, 428
 Gulf of Mexico, 194, 288-292, 480
 guppy, 8

 habitat, *Cottus*, 311
 habitat, *Etheostoma*, 4
 habitat, mud-skipper, 19
 hammerhead, great, 480

 Hatchie, 391
 hatching, *Hyla*, 342-344
 hatching painted turtles, winter survival, 109
 Hawaii, 228, 479-80
 hermaphroditism, fish, 471
 herpetofauna, 391-396
 hibernation, wood frog, 75
 histology, fish, 472
 hognose snake, 125-132
 holotype, *Chionodra*, 51
 holotype, *Cottus girardi*, 307
 holotype, *Forcipiger inornatus*, 58
 holotype, *Gastromyzon*, 171
 holotype, Kingsnake, 327
 holotype, *Mugil*, 297
 holotype, *Phaeognathus*, 67
 holotype, *Tantilla*, 146
 Holston River System, 311
 Hugh M. Smith, vessel, 478
 hybrid, fish, 231-232
 hybridization, fish, 181-192
 hydrogen ion concentration, 34
 hylid, 62
 illium, 354
 Miocene, 354-355
 hyoid, 82-86

 iguanas, desert 396-405
 Iguanidae, 396-405, 486
 illium, Hylid, 354
 immunoelectrophoresis, 488-90
 incubation period, fish, 198-200
 incubation, reptile eggs, 112-113
 Indian Ocean, 292
 injuries, fish, 456-461
 intercostals, 317
 intergradation, *Cnemidophorus*, 156
 integradation, fish, 181-192
 internal carotid artery, 72

 jack dempsey, 9
 juveniles, behavior, 396-405

 Kentucky, 2
 Kentucky drainage, 4
 Kentucky River system, 3
 key, *Etheostoma*, 4-5
 Forcipiger, 55-56
 Gillichthys, 425
 Lampropeltis, 331
 Monolene, 194
 Mugilidae, 301-303
 mullet, 301-302
 Pareques, 28
 killifish, mummichog, 8
 kingsnake, 326
 dorsal scale reductions, 327
 holotype, 327

- morphology, 327-328
 phylogenetic relationships, 331
 Kyphosidae, 358
 Kyphosid fish, 357
- Labridae, 265
 labroid fishes, 269
 ladyfish, 268
 lagarto, 494
 lampnose characin, 10
 lanternfish larvae, 274-279
 lanternfish larvae, distribution, 274-279
 larvae, caddisfly, 495-6
 salamander, morphology, 377-383
 walleye, 282-287
 yellow perch, 282-287
 larval
 carapid fishes, 479-480
 development, *Hyla*, 341-349
 fishes, measuring device, 224, 226
 mouthparts, *Hyla*, 348-349
 stages, *Hyla*, 345
 lateral line, 3
 lateral lines, gulf menhaden, 39-42
 length frequencies, rockfish, 280-281
 Lepophidiinae, 218
 Lethrinidae, 437-441
 LD, rattlesnake venom, 323
 life history notes, stingray, 232
 little striped whiptail lizard, 148
 lizard, whiptail, 148
 lizards, fringed-toed, 396-405
 lizards, running speeds, 223
 lizards, Western Mexico, 98-103
 locality restrictions, 352
 locomotion, mud-skipper, 22-23
 longevity, *Constrictor constrictor*, 353-354
 longfin hake, distribution, 229-230
 lunate tail, 269
 lungless salamander, 65-68
 lungfish, South American, 9
- mackeral, winter movement, 115
 marsh crabs, 19
 mating call, *Hyla*, 414-417
 measurements, *Gillichthys*, 435
 measurements, *Liolaemus*, 387-391
 measurements, Ophidiidae, 217
 measuring device, larval fishes, 224-226
 membrane, tympanic, lizards, 405-410
 menhaden, 458, 459, 460
 meristic counts, flatfish, 193
 meristics, *Apeltes*,
 Cottus, 306-309
 Cyprinidae, 185
 Forcipiger, 57
 Gastromyzon, 169-170
 Notropis, 454
 percid fishes, 285
- Ranzania*, 467-70
 stickleback, 444-445
 mesopodial elements, plethodontid sala-
 manders, 79-86
 metachromatic, staining, 222
 metamorphosis, salamander, 377-383, 499
 Mexican tetra, 10
 Mexico, 326
 mice, effect of *Crotalus* venom, 323
 microelectrophoresis, 488-490
 middle ear, 405-410
 lizards, 405-410
 nerves, 71
 northern earless lizard, 68-74
 Miocene, hyliid, 354-355
 Mississippi, 391-6
 Missouri River, 1
 Mitchell's stickleback, 442-450
 Mochocidae, 163
 Monacanthidae, 265, 267, 360
 Monotaxinae, 437-438
 moray eels, touch receptors, 42-46
 mormyrid, 9
 morphology, *Bufo*, 333-336
 chameleons, 411-414
 king snake, 327-328
 plethodontids, 79-86
 Ranzania, 467-70
 reptiles, 486-8
 salamander, 65-68, 371-383
 salamander larvae, 377-383
 Tantilla, 145
 teiid lizards, 141
 tree frog, 62-65
 Tropidodipsas, 383-387
 whiptail lizard, 148-157
 whiptail lizards, 98-103
 wood frog, 75
 morphometric data, *Ranzania*, 467-470
 morphometry, *Alutera*, 361
 morphometry, percid fishes, 285
 morphometry, *Ranzania*, 467-470
 movement, water snakes, 498
 mud-skipper, feeding, 22
 habitat, 19
 locomotion, 22-23
 natural history, 198
 nesting, 20-21
 respiration, 24-25
 temperature responses, 25-26
 territorial behavior, 20-21
- Mugilidae, 295
 Mugilidae, key, 301-303
 mullet, 295-304, 457
 comparisons, 298-299
 dentitional variation, 300-301
 key, 301-302
 synonymies, 303-304

Mullida
 mumm
 mumm
 muscl
 M/V A
 M/V O
 M/V Si
 Myctop

Nass R
 natur
 natur
 nerves,
 nerves,
 nervou
 nesting
 nest ut
 Niangu
 nomen
 northe
 northe
 nototh
 Nueces
 nuptia

oblong
 ocean
 ocellat
 ontog
 oophal
 opaley
 Ophid
 ophid
 ophid
 Ophid
 ophid
 ophid
 oral d
 ornam
 Osage
 oxyge

paed
 papu
 Parqu
 Pareo
 parro
 Peaco
 pearn
 pedic
 Perc
 perci
 perci
 perci
 perci
 perci

- Mullidae, 265
- mummichog, 10
- mummichog killifish, 8
- muscles, ear region, 69, 405-410
- M/V Albatross, 232
- M/V Oregon, 192, 218-9, 232, 480
- M/V Silver Bay, 232
- Myctophidae, 277

- Nass River, 270
- natural dispersal, salamander, 353
- natural history, mud-skipper, 18
- nerves, middle ear, 71
- nerves, middle ear, lizards, 405-410
- nervous system, *Eleutherodactylus*, 104-105
- nesting, mud-skipper, 20-21
- nest utilization, green sunfish, 113-115
- Niangua darter, 4
- nomenclatorial procedure, 352
- northern clingfish, 351
- northern earless lizard, middle ear, 68-74
- nototheniid bottom fish, 17
- Nueces River System, 199
- nuptial tubercles, fish, 455

- oblong ocean sunfish, 467-70
- ocean filefish, 360
- ocellated fringed frogfish, 230-231
- ontogenetic changes, 372
- oophagy, toads, 96
- opaleye, 38
- Ophicephalidae, 176-181
- ophichthid eels, 357
- ophidiid fishes, 212-221
- Ophidiidae, new, 212-221
- ophidioids, morphometry, 291-292
- ophidioids, meristics, 291-292
- oral disc, *Hyla*, 348
- ornamentation, chameleons, 411-414
- Osage River system, 1
- oxygen, dissolved, 35

- paedomorphosis, 83
- papua, 115-116
- Parques, key, 28
- Pareques, radiographs, 29
- parrotfishes, 238
- Peace River, 270
- pearlfish, 479
- pediculate fishes, 230
- Percesoces, 268
- percid fish, 1-8
- percid fishes, meristics, 285
- percid fishes, morphometry, 285
- percid fishes, pigmentation, 282-287
- perciform, caudal skeleton, 265-274
- pigmentary pattern, *Hyla*, 341, 346-48
- pigmentation, percid fishes, 282-287
- pigmentation, Ophidiidae, 219
- pike, 268
- pipefish, 19
- pistol shrimps, 19
- phalangeal formula, turtle, 496-8
- photography, fish, 241-242
- phylogenetic relationships kingsnakes, 331
- phylogeny, plethodontids, 84-86
- physiology, fishes, 8
- plates, ventral, 127
- platyfish, 10
- plasma, anticoagulant, turtle, 222
- plasma, turtle, 222
- plectognath fishes, 267
- plethodontid salamanders, 79-86, 315-22
- polar basin, 236
- polychaetes, 22
- Polynemidae, 265
- Pomacentridae, 268
- pomacentrids, 267
- populations, frog, 336-340
- Potomac River System, 306
- Potomac sculpin, 306
- predation, on salamander eggs, 495-6
- proportional measurements, *Hybognathus*, 465
 - Chionodraco*, 52
 - Cottus*, 310
 - Gastromyzon*, 171
 - Notropis*, 455
- Puebla, 414

- quadrate, 69
- quantitative characters, *Bufo*, 333-336

- radioactive zinc, 158
- radiographs, *Equetus*, 29
- radiographs, plethodontid salamanders, 78
- radiographs, *Pareques*, 29
- rainbow runner, 357
- rainbow trout, 158-161
- range extension, Blennioid, 476-477
- range extensions, eels, 357
- rattlesnake, bites, first aid treatment, 418-422
 - reactions, 418-422
 - red diamond, 418-422
 - venom, 323-325
- ray, food habits, 239-241
- razorfish, 238
- reactions, rattlesnake, 418-422
- recaptures, spiny dogfish, 228
- red-backed salamander, brooding behavior, 95-8
- red diamond rattlesnake, 418-422
- redfin shiner, 113
- Redside Shiners, 270-279

- redside shiners, sexual differences, 271
 rehydration, eggs, salamander, 110-112
 relationships, *Desmognathus*, 315-322
 whiptail lizards, 98-103
 Gillichthys, 435
 Lampropeltis, 328-329
 Notropis, 455
 Tantilla, 147-148
 teiid lizards, 141-143
 reptile eggs, incubation, 112-113
 reptiles, 391-396
 Chile Expedition, 486-8
 distribution, 391-396, 486-488
 morphology, 486-8
 respiratory system, *Eleutherodactylus*, 105
 respiration, mud-skipper, 24-25
 restrictions, locality, 352
 River Systems,
 Holston, 311
 Kanawha, 310
 Nueces, 199
 Potomas, 306
 rockfish, length frequencies, 280-281
 roughhead shiner, 450-456
 rougtail stingray, 232
 running speeds, lizards, 223

 salamander coloration, 65-68
 costal grooves, 65
 coloration, 374
 development, 96-97
 dispersal, 353
 distribution, 371-377
 eggs, 495-496
 eggs, desiccation, 110-112
 eggs, rehydration, 110-112
 eggs, predation on, 495-496
 larvae, morphology, 377-383
 larval, 377-383
 metamorphosis, 499
 morphology, 65-68
 systematics, 371-377
 trunk vertebrae, 65
 variation, 371-383
 vomerine teeth, 67
 salinity, 234
 salinity tolerances, fishes, 32
 Salton Sea, 428, 430
 sand crab, 22
 scale counts, *Etheostoma*, 2
 scales, subcaudal, 127
 Scaridae, 238
 scarids, 269
 Sciaenidae, 234
 Sciaenidae, tropical species, 27-32
 Scorpidae, 358
 Sculpin, Black, 311
 fin growth, 473-475
 fourhorn 473-475
 Potomac, 306
 tidepool, 351
 seahorse, 460
 seasonal occurrence, *Ranzania*, 467-470
 seasonal variation, *Ranzania*, 467-470
 secondary vocal structures, toads, 89
 secondary sexual characters, viviparous fishes,
 201-212
 sensory canals, fish, 176-181
 sensory canal system, *Gillichthys*, 433
 seroprotein, *Leptodactylus*, 339
 Serranidae, 265-274
 serum proteins, frog, 336, 340
 seven striped whiptail, 153-157
 sexual behavior patterns, Cyprinodonti-
 formes, 201-212
 sexual behavior patterns, Poeciliidae, 201-212
 sexual cycle, *Leptodactylus*, 336
 sexual differences, redside shiners, 271
 sharks, 460
 shine-perch, 38
 shiner, roughhead, 450-456
 shiners, common, 188
 Siluridae, 176-181
 Silver Bay, 233, 275
 Sirembinae, 289
 Sisoridae, 471-473
 sisorid fish, 471-473
 skeletal elements, 405-410
 skeletal system, *Eleutherodactylus*, 106
 skinks, 113
 skink, ground, 493
 skipjack, 226, 227, 228
 small mouth bass, 115
 snake-eel, 115, 116
 snake venoms, 488-490
 snapping turtles, 356
 social status, 399
 Society Islands, 237
 sockeye, salmon, fin anomaly, 116-117
 softshell turtle, distribution, 354-355
 Soleidae, 292-95
 sound production, *Bufo*, 86-95
 South American lungfish, 9
 South America, tree frog, 62-65
 South Dakota, 333
 southern Brazil, 493-494
 southwestern Texas, 144
 spadefish, 456
 spadefishes, 456
 spawning, surgeonfishes, 237-239
 spawning behavior, frogfish, 230-231
 Sphyracidae, 265
 sparoid fishes, 437-441
 spectrogram, *Bufo*, 88
 sperm, fish, 199
 spermatophore, *Ambystoma*, 136-137

spermat
 spiny d
 spiny d
 spiny d
 squetea
 squid, 2
 stickleb
 meris
 Mitch
 varia
 stingray
 life h
 roug
 stream
 striped
 striped
 subcau
 sucker
 sunfish
 supern
 surgeoi
 swim
 swordt
 sympat
 sympat
 Synode
 synom
 Rivers
 Cum
 Cum
 Ken
 Ken
 Mis
 Nas
 Osas
 Peac
 system

 tadpo
 taggin
 tail, *E*
 tail, l
 tail sh
 tail sh
 Teiid
 alti
 com
 dist
 mo
 rela
 var
 teju,
 temp
 temp
 temp
 Tenn
 tenui
 territ
 Terry

- spermatozoa, *Gillichthys*, 430
- spiny dogfish, 228
- spiny dogfish, recaptures, 228
- spiny dogfish, tagging, 228
- squeteague, white, 460
- squid, 239
- stickleback, fourspine, 442-450
 - meristics, 444-445
 - Mitchill's, 442-450
 - variation, 442-450
- stingray, 482-483
 - life history notes, 232
 - rougthead, 232
- stream capture, 1-8
- striped whiptail, eight, 151
- striped whiptail, seven, 153-157
- subcaudal scales, 127
- sucker catfish, 9
- sunfish, oblong ocean, 467-470
- supernumary fins, grass pickerel, 235
- surgeonfishes, 237-239, 358
- swimming crabs, 19
- swordtails, 9
- sympatry, Chameleons, 411-414
- sympatry, whiptail lizards, 101
- Synodontidae, 163
- synonymies, mullet 303-304
- Rivers
 - Cumberland River, 1
 - Cumberland River, 2
 - Kentucky River, 1
 - Kentucky River, 3
 - Missouri River, 1
 - Nass River, 270
 - Osage River, 1
 - Peace River, 270
- systematics, salamander, 371-377
- tadpole, frog, 495
- tagging, spiny dogfish, 228
- tail, *Eleutherodactylus*, 106
- tail, lunate 269
- tail shape, 322
- tail slapping aggression, 396-405
- Teiidae, 493
 - altitudinal variation, 141
 - comparison, 142
 - distribution, 139, 493-494
 - morphology, 141
 - relationships, 141-143
 - variation, 139
- teju, 494
- temperature responses, mud-skipper, 25-26
- temperature survival, fish, 196
- temperature tolerances, fish, 195-198
- Tennessee, 391
- tenuis, 479
- territorial behavior, mud-skipper, 20-21
- Terry Ann, 457
- Testudinidae, 496
- tetra, Mexican, 10
- Tetraodontidae, 267
- tetras, 10
- Texas, 144
- tidepool sculpin, 351
- Tishomingo County, 391
- toads, air flow mechanics, 94
 - anatomy, larynx, 88-95
 - breeding season, 488
 - call analysis, 90
 - oophagy, 96
 - trill rate, 92-93
- Tombigbee, 391
- touch receptors, fishes, 42-46
- touch receptors, moray eels, 42-46
- trailing device, gila monster, 491-492
- tree frog, color, 64
 - South America, 62-65
 - morphology, 62-65
- trill rate, toads, 92-93
- tropical species, Sciaenidae, 27-32
- trout, 268
 - brook, 158-161, 359
 - rainbow, 158-161
- trunk vertebrae, salamander, 65
- tunas, 268
- turbot, 37
- turtle, anticoagulant, plasma, 222
 - phalangeal formula, 496-498
 - plasma, 222
 - snapping, 356
- two-cell stage, egg, 341
- tympanic cavity lizards, 405-410
- tympanic membrane, 69
- tympanic membrane, lizards, 405-410
- urogenital system, *Eleutherodactylus*, 105
- variation, and fin ray count, 207-279
 - behavior, 133
 - chameleons, 411-414
 - coronal spines, 279-282
 - geographic, 125-132
 - Hyla*, 414-417
 - intraspecific, 316
 - Plethodontidae, 315-322
 - salamander, 374-383
 - stickleback, 442-450
 - teiid lizards, 139
 - Tropidodipsas*, 383-387
 - Woodhouse's toad, 333-336
- vascular system, *Eleutherodactylus*, 105-6
- vasoconstriction, 324
- vasodilatation, 324
- vena capitis lateralis, 72
- venom, 488-490
- venom, cooling measures, 323-325
- venom, effect on mice, 323

- venom, rattlesnake, 323-325
ventral plates, 127
Veracruz, 414
vertebral counts, fish, 443
vexillifer, 479
viviparous fishes, secondary sexual characters, 201-212
vocal chords, larynx, *Bufo*, 87
vomerine teeth, salamander, 67

walleye, larvae, 282-287
water levels, environmental factor, toads, 488
water snakes, movement, 498
West Africa, 194
western lesser siren, distribution, 354
western Mexico, lizards, 98-103
whiptail, eight striped, 151
 dorsal scuttulations, 98-100
 color pattern, 100-102
 comparison, 150

distribution, 98-103, 148-157
morphology, 148-157, 98-103
relationship, 98-103
sympatry, 101
seven, striped, 153-157
white squeteague, 460
Winkler method, 35
winter movement, mackerel, 115
winter survival, hetchling painted turtles, 109
wood frog, 74-79
Woodhouse's toad, variation in, 333-336
wrasse, 238

Yale-Seychelles Expedition, 292
yellow perch, larvae, 282-287

zanclid-acanthurid-plectognath, 269
zanclids, 269
zoogeography, 391-396
zoogeography, *Notropis*, 455-456

